Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 152,1 (2018)	30-Sep-2017

Q(β^-)=−5914.07 *4*; S(n)=11838.47 *28*; S(p)=10242.25 *20*; Q(α)=−7208.05 *20* 2017Wa10
S(2n)=20625.92 *20*, S(2p)=18628.63 *27* (2017Wa10).
Isotope shifts, charge radii measured: 2005Bl33, 2003Sa20, 2000Ga58, 1996Kl04, 1988Mo30, 1986Mu06.
Mass measurement: 2002He23 (Penning-trap method).
Measurement of isotope abundance ratio: 1995Ya15.
Other measurements:
^{40}Ca(^{40}Ca,X) E=50 MeV/nucleon: 2007Fa17: 3-phonon giant resonances. GANIL facility using SPEG spectrometer and INDRA 4π array of CsI(Tl) detectors. Measured γ, protons and α particles from decay of giant resonances. Population of g.s., and levels near 2200 keV and 4000 keV from decay of GQR in ^{40}Ca to ^{38}Ar via two-proton decay.
^{41}Ca(n,α) E=0.6-50 keV: 2007DeZR: measured cross section and Γ.
^{41}Ca(n,α) E<80 keV: 2012Ve01: measured cross section.
Structure calculations (selected references): 2004Sv02 (high-spin levels), 2003Be53 (high-spin levels), 2003Se17 (RPA calculations), 1994Mi19 (levels, moments, etc.), 1970Sk01 (even-parity states).
Calculated M1 strength distributions with large-scale shell-model calculations in *sd* and *pf* shells: 2007Li56 (also 2007Li37).
Comparison of experimental and theoretical g factors: 2007Be42.

^{38}Ar Levels

Cross Reference (XREF) Flags

A	^{38}Cl β^- decay (37.230 min)	M	^{35}Cl(α,pγ)	Y	^{40}Ca(π^-,pnγ)
B	^{38}K ε decay (7.651 min)	N	^{36}Ar(t,p)	Z	^{40}Ca(μ^-,νpnγ)
C	^{38}K ε decay (924.4 ms)	O	^{36}Ar(α,^{2}He)	Others:	
D	^{12}C(^{34}S,^{8}Beγ)	P	^{37}Cl(p,γ):resonances	AA	^{40}Ca(n,^{3}He)
E	^{16}O(^{28}Si,α2pγ)	Q	^{37}Cl(^{3}He,d)	AB	^{40}Ca(P,3pγ)
F	^{24}Mg(^{16}O,2pγ)	R	^{37}Ar(n,n),(n,α):resonances	AC	^{40}Ca(^{14}C,^{16}O)
G	^{24}Mg(^{24}Mg,2α2pγ)	S	^{38}Ar(e,e′)	AD	^{40}Ca(^{18}O,^{20}Ne)
H	^{27}Al(^{14}N,n2pγ)	T	^{39}K(n,d)	AE	^{41}K(p,α)
I	^{27}Al(^{16}O,αpγ)	U	^{39}K(P,2pγ)	AF	^{42}Ca(d,^{6}Li)
J	^{34}S(α,γ):resonances	V	^{39}K(d,^{3}He)	AG	^{42}Ca(^{3}He,^{7}Be)
K	^{34}S(^{7}Li,t)	W	^{39}K(t,α)		
L	^{35}Cl(α,p)	X	^{40}Ar(p,t)		

Isospin T=1 (triplet) states

^{38}Ar	^{38}Ca	ΔE(1)	^{38}K	ΔE(2)
0,0$^+$	0,0$^+$	130,0$^+$ T=1		
2168,2$^+$	2213,2$^+$ +45	2401,2$^+$ T=1	+103,+58	
3378,0$^+$	3084,0$^+$ -294			
3810,3$^-$	3703,3$^-$ -107			
3936,2$^+$	3684,2$^+$ -252			

ΔE(1)=E(^{38}Ca)-E(^{38}Ar)
ΔE(2)=E(^{38}K)-E(^{38}Ar)-130, E(^{38}K)-E(^{38}Ca)-130

Isospin T=2 (quintuplet) states

^{38}Cl	^{38}Ar	ΔE
0,2$^-$	10631,(2$^-$), T=2	
671,5$^-$	11302,5$^-$ & 11308,5$^-$ T=2	+1,+7
755,3$^-$	11351,3$^-$ & 11355,3$^-$ T=2	-34,-30
1309,4$^-$	11928,4$^-$ T=2	-11

ΔE=E(^{38}Ar)-E(^{38}Cl)-10630

E(level)[†]	Jπ[‡]	T1/2[#]	XREF	Comments
0.0	0+	stable	ABCDEFGHIJKLMNOPQ TUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG Jπ: no hyperfine structure observed in optical spectroscopy (1953Me73). <r2>1/2=3.4028 fm *19* (2013An02 evaluation). Additional information 1.
2167.472 *12*	2+	0.458 ps *21*	AB DEFGHIJ LMNOPQ TUVWXYZ	XREF: Others: AB, AC, AD, AE, AF, AG μ=+0.48 *24* (2006Sp01) E(level): 2167.60 *6* from (p,γ):resonances. Jπ: L(t,p)=L(p,t)=2 from 0+; 2167.4γ E2 to 0+. T1/2: weighted average of 0.492 ps *21* from (^{34}S,^{8}Beγ), 0.444 ps *25* from (^{16}O,αpγ), 0.45 ps *2* from (α,pγ), and 0.37 ps *5* from (p,α). μ: transient magnetic field and DSA in ^{12}C(^{34}S,^{8}Be) reaction (2006Sp01). See also 2014StZZ compilation. Additional information 2.
3376.9 *3*	0+	22.8 ps *15*	A D H JKLMN PQ V X Z	XREF: Others: AC, AE, AF, AG E(level): 3377.36 *23* from (p,γ):resonances. Jπ: L(t,p)=L(p,t)=0 from 0+; E0 transition to 0+. T1/2: from recoil-distance method in (α,pγ). Other: >0.35 ps in (p,γ):resonances. Additional information 3.
3810.18[b] *3*	3−	56 fs *14*	AB DEFGHIJ LMNOPQ U WXYZ	XREF: Others: AB, AE, AF, AG XREF: W(3854?). E(level): 3810.09 *11* from (p,γ):resonances. Jπ: L(p,t)=3 and L(t,p)=3,4 from 0+; L(^{3}He,d)=1+3 from 3/2+; 1642.7γ ΔJ=1 E1(+M2) to 2+. T1/2: weighted average of 52 fs *14* in (α,pγ) and 74 fs *28* in (p,γ). Additional information 4.
3936.5[@] *4*	2+	43 fs *5*	AB DE H JKLMN PQ VWXYZ	XREF: Others: AE, AF, AG μ=+2.2 *22* (2006Sp01) XREF: W(3961). E(level): 3936.61 *18* from (p,γ):resonances. Jπ: L(t,p)=L(p,t)=2 from 0+; L(^{3}He,d)=L(d,^{3}He)=0 from 3/2+. T1/2: weighted average of 47 fs *6* in (^{34}S,^{8}Beγ), 32 fs *13* in (α,pγ), 33 fs *10* in (p,γ) and 54 fs *15* in (α,γ):resonances. μ: transient magnetic field and DSA in ^{12}C(^{34}S,^{8}Be) reaction (2006Sp01). See also 2014StZZ compilation. Additional information 5.
4479.98 *8*	4−	0.97 ps *+25−20*	DEFGHIJ LMN PQ YZ	XREF: Others: AE E(level): 4479.92 *14* from (p,γ):resonances. Jπ: L(^{3}He,d)=3 from 3/2+; J=4 from γ(θ) in (p,γ):resonances; 669.8γ ΔJ=1 M1(+E2) to 3−. T1/2: weighted average of 0.93 ps *20* in (^{16}O,αpγ) and 1.3 fs *+8−3* in (α,pγ). Other: >0.42 ps in (p,γ):resonances. Additional information 6.
4565.5[&] *5*	2+	36 fs *3*	AB DE J LM PQ VW Z	XREF: Others: AE E(level): 4565.5 *2* from (p,γ):resonances. Jπ: 1+,2+ from L(d,^{3}He)=L(^{3}He,d)=0 from 3/2+ ; 1+ is ruled out by 755.3γ to 3− and RUL. T1/2: weighted average of 35 fs *3* in (^{34}S,^{8}Beγ), 51

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				fs *14* in (α,pγ) and 38 fs *11* in (p,γ):resonances. Other: <62 fs in (α,γ):resonances. Additional information 7.
4585.87[b] *8*	5⁻	132 ps *4*	DEFGHI LMNOPQ X Z	XREF: Others: AE E(level): 4585.2 *4* from (p,γ):resonances. Jπ: L(p,t)=5 from 0⁺; L(^{3}He,d)=3 from 3/2⁺; 775.7γ E2 to 3⁻ and 105.9γ M1(+E2) to 4⁻. $T_{1/2}$: weighted average of 136 ps *7* in (^{16}O,2pγ), 130 ps *4* in (^{14}N,n2pγ), 135 ps *4* in (^{16}O,αpγ), and 128 ps *6* in (α,pγ). Other: >0.35 ps in (p,γ):resonances. Additional information 8.
4709.3 *10*	0⁺	1.7 ps *+21−7*	J LMN P XYZ	XREF: Others: AE XREF: X(4730). E(level): 4710.3 *2* from (p,γ):resonances. Jπ: L(t,p)=L(p,t)=0 from 0⁺. $T_{1/2}$: from (α,pγ). Other: >0.42 ps in (p,γ):resonances.
4877.0 *3*	3⁻	34 fs *8*	J LMN PQ W	XREF: Others: AE E(level): 4876.87 *14* from (p,γ):resonances. Jπ: 2709.4γ E1+M2 γ to 2⁺ and 1066.8γ M1(+E2) γ to 3⁻; L(t,p)=3,4 from 0⁺; L(^{3}He,d)=1+3 from 3/2⁺; J=3 from γ(θ) in (p,γ):resonances. $T_{1/2}$: weighted average of 53 fs *14* in (α,pγ) and 31 fs *6* in (p,γ). Additional information 9.
5083.6 *10*	(2)⁻	39 fs *10*	J LMN PQ	XREF: Others: AE E(level): 5084.3 *5* from (p,γ):resonances. Jπ: 1⁻,2⁻,3⁻ from L(^{3}He,d)=1+3 from 3/2⁺; J=2 is proposed in (α,pγ) and (p,γ):resonances. But 1⁻ and 3⁻ are not completely ruled out. $T_{1/2}$: weighted average of 57 fs *21* in (α,pγ) and 35 fs *10* in (p,γ).
5157.3 *2*	2⁺	23 fs *7*	B J LMN PQ VWX Z	XREF: Others: AE XREF: N(5170). Additional information 10. Jπ: L(t,p)=L(p,t)=2 from 0⁺; L(d,^{3}He)=L(^{3}He,d)=0 from 3/2⁺. $T_{1/2}$: weighted average of 28 fs *13* in (α,pγ) and 22 fs *7* in (p,γ):resonances.
5349.4[@] *3*	4⁺	0.14 ps *4*	B E H KLMN P W Z	XREF: Others: AD, AE XREF: W(5376)AD(5400?). E(level): 5349.5 *2* from (p,γ):resonances. Jπ: J=4 from pγ(θ) in (α,pγ); 3182.2γ ΔJ=2 E2 to 2⁺; 1539γ to 3⁻. $T_{1/2}$: weighted average of 0.14 ps *4* in (α,pγ) and 0.15 ps *5* in (p,γ):resonances.
5513.3 *4*	3⁻	0.19 ps *6*	J LMN PQ	XREF: Others: AD, AE XREF: AD(5400?). E(level): 5513.38 *16* from (p,γ):resonances. Jπ: L(t,p)=3,4 from 0⁺; L(^{3}He,d)=1+3 from 3/2⁺. $T_{1/2}$: weighted average of 0.19 ps *6* in (α,pγ) and 0.19 ps *7* in (p,γ).
5552.21 *18*	1⁺,2⁺	11 fs *6*	B J M PQ VW Z	XREF: Others: AE Additional information 11.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				Jπ: L(^{3}He,d)=L(d,^{3}He)=0 from 3/2$^+$. $T_{1/2}$: from (p,γ):resonances. Other: <31 fs in (α,pγ).
5594.6 *6*	2$^+$	60 fs *18*	J N PQ	XREF: Others: AE, AG Additional information 12. Jπ: L(t,p)=2 from 0$^+$; 2217.6γ and 5594.2γ to 0$^+$. L(^{3}He,d)=1+3 from 3/2$^+$ (suggesting 1$^-$,2$^-$,3$^-$) is inconsistent.
5658.61[c] *22*	5$^-$	29 fs *5*	EF H LMNOPQ	XREF: Others: AE E(level): 5658.1 *5* from (p,γ):resonances. Jπ: 1072.8γ ΔJ=0 M1(+E2) to 5$^-$; L(^{3}He,d)=3 from 3/2$^+$. $T_{1/2}$: weighted average of 64 fs *28* in (α,pγ) and 28 fs *4* in (p,γ):resonances. Other: <0.7 ps in ^{27}Al(^{14}N,n2pγ). Additional information 13.
5733.9 *5*	1$^-$	<4 fs	J N PQ W	XREF: Others: AE Additional information 14. Jπ: 1,2$^+$ from 5733γ to 0$^+$ and RUL; 2$^+$ is ruled out by L(^{3}He,d)=1 or 1+3 from 3/2$^+$. But L(t,p)=2 for 5740 group (suggesting 2$^+$) is inconsistent.
5824.9 *2*	3$^-$	0.24 ps *+62−14*	J L N PQ w	XREF: Others: AE, AG Additional information 15. Jπ: L(t,p)=3,4 from 0$^+$; L(^{3}He,d)=1+3 from 3/2$^+$; 3657γ to 2$^+$ and 1345γ to 4$^-$.
5857.5 *2*	(2)$^-$	15.2 fs *35*	L PQ w	XREF: Others: AE Additional information 16. Jπ: L(^{3}He,d)=3 from 3/2$^+$ gives 1$^-$ to 5$^-$; 981γ to 3$^-$ and RUL require ΔJ<2, since ΔJ=2 would require an unreasonably large B(E2) or B(M2) value; 3690γ to 2$^+$ disfavors 4$^-$; J=2 is favored by 5547γ from the 10631,(2$^-$) level with T=(2), possible IAS of ^{38}Cl g.s., J^π=2$^-$. But 3$^-$ is not completely ruled out.
5974.8 *2*	(0$^+$ to 3$^-$)	>1.7 ps	P	XREF: Others: AE Additional information 17. Jπ: 818γ, 1409γ, 2038γ, 3807γ to 2$^+$, 5577.4γ from (1)$^-$.
6041.8 *3*	(3$^-$,4$^+$)	58 fs *12*	LMn P w	XREF: Others: AG Additional information 18. Jπ: 1456γ to 5$^-$, 2232γ to 3$^-$, 5336.9γ from (2$^+$).
6053.2[&] *4*	(4$^+$)	71 fs *14*	E LMn P w	XREF: Others: AE E(level): 6053.1 *3* from (p,γ):resonances. Jπ: (3,4$^+$) from 704γ to 4$^+$, 1573γ to 4$^-$, 1488γ and 2116γ to 2$^+$; (4$^+$) is favored by band structure.
6209.4 *6*	4$^-$	74 fs *23*	l n PQ	XREF: Others: AE E(level): 6210.0 *10* from (p,γ):resonances. Jπ: 1729γ(θ) in (p,γ):resonances gives J=4; L(^{3}He,d)=3 from 3/2$^+$.
6213.8 *3*	(2$^+$)	5.4 fs *31*	J l n P	XREF: Others: AE

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				Additional information 19.
				Jπ: 6213γ to 0^+, 5517.0γ from (4^+); primary 4959γ and 5054γ from 3^- in (p,γ):resonances.
6249.9 *3*	2^+	>111 fs	lM P X	XREF: Others: AE, AG
				XREF: AE(6259).
				Additional information 20.
				Jπ: 901γ to 4^+ and 2873γ to 0^+; primary 4952γ from 1^- in (p,γ):resonances.
6276.1 *4*	4^+	81 fs *35*	l N P X	XREF: Others: AD, AE
				XREF: N(6287)X(6320)AD(6300)AE(6286).
				Additional information 21.
				Jπ: L(p,t)=4 from 0^+; L(t,p)=3,4 from $3/2^+$; 2340γ and 4108γ to 2^+, 927γ to 4^+, 1796γ to 4^-.
6338.6 *5*	$1^-,2^-,3^-$	<13 fs	L PQ	XREF: Others: AE
				XREF: AE(6347).
				Additional information 22.
				Jπ: L(^{3}He,d)=1+3 from $3/2^+$.
6353.5 *4*	1^-	3.6 fs *14*	PQ	XREF: Others: AE
				XREF: AE(6360).
				Additional information 23.
				Jπ: L(^{3}He,d)=1+3 from $3/2^+$ gives $1^-,2^-,3^-$; 6353γ to 0^+ and RUL rules out 2^- and 3^-.
6408.32 *10*	6^+	1.0 ps *3*	EFGH LMNOP	XREF: Others: AE
				XREF: AE(6420).
				Jπ: J=6 from γ(θ) in (^{16}O,2pγ) and (^{14}N,n2pγ); 1822γ ΔJ=1 E1(+M2) to 5^-.
				$T_{1/2}$: from ^{24}Mg(^{16}O,2pγ). Other: <1.4 ps from ^{27}Al(^{14}N,n2pγ).
6476.6 *19*	(0^+ to 3^-)	>0.17 ps	l n Pq	XREF: Others: AE
				Additional information 24.
				Jπ: 1911γ to 2^+; primary 4725γ from 1^- in (p,γ):resonances.
6485.4 *7*	$(1^-,2,3^-)$	29 fs *22*	J l n Pq	XREF: Others: AE
				Additional information 25.
				Jπ: 4318γ to 2^+, 2675γ to 3^-, 4829γ from 1^-. L(^{3}He,d)=1 for 6486 *10* group gives $(0,1,2,3)^-$ for any of the three levels near this energy.
6495.8 *3*	$(2^-,3^-)$	10 fs *4*	Pq	XREF: Others: AE
				Additional information 26.
				Jπ: 2016γ to 4^-, 2559γ to 2^+, 5056.4γ from $(1)^-$.
6520	2^+		X	Jπ: L(p,t)=2 from 0^+.
6574.3 *5*	1^-	<3.5 fs	N PQ	XREF: Others: AE
				XREF: AE(6590).
				Additional information 27.
				Jπ: L(^{3}He,d)=1 or 1+3 from $3/2^+$; 6574γ to 0^+ and RUL. But L(t,p)=3,4 is inconsistent with 1^-.
6601.59 *23*	4^-	12.5 fs *21*	J lM PQ	XREF: Others: AE
				XREF: Q(6593)AE(6610).
				E(level): 6601.18 *19* from (p,γ):resonances.
				Jπ: 2122γ ΔJ=0 M1(+E2) to 4^-; L(^{3}He,d)=3.
6621.6 *4*	$(1^-,2,3^-)$	36 fs *12*	l PQ	XREF: Others: AE
				XREF: Q(6611)AE(6630).
				Additional information 28.
				Jπ: 2056γ to 2^+, 2811γ to 3^-, 4930.7γ from $(1)^-$. L(^{3}He,d)=(2) from $3/2^+$ suggests π=+.
6674.4 *3*	5^-	13.7 fs *35*	EF lMn PQ	XREF: Others: AE

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				XREF: ae(6680). E(level): 6673.5 *6* from (p,γ):resonances. Jπ: 2089γ ΔJ=0 to 5⁻; L(^{3}He,d)=3 from 3/2⁺.
6681.6 *5*	(0,1,2)	53 fs *19*	n P	XREF: Others: AE XREF: ae(6680). Additional information 29. Jπ: 948γ to 1⁻ and RUL requires ΔJ<2.
6772.7 *5*	1⁻	<2.8 fs	PQ	XREF: Others: AE Additional information 30. Jπ: 6772γ to 0⁺ gives (1,2⁺); L(^{3}He,d)=1 from 3/2⁺ and RUL rules out 1⁺ and 2⁺.
6824.0 *15*	(2⁺,3⁻)	17 fs *6*	n Pq	XREF: Others: AE Additional information 31. E(level): unresolved doublet at 6824 keV in (p,γ):resonances. Jπ: 4656γ to 2⁺, 3014γ to 3⁻, 4728.3γ from (1)⁻, 4906.9γ from (4⁺); L(^{3}He,d)=1 suggests (0 to 3)⁻ for 6824.0 and/or 6824.1.
6824.1 *15*	(0⁺ to 4⁺)		n Pq	XREF: Others: AE Additional information 32. E(level): unresolved doublet at 6824 keV in (p,γ):resonances. Jπ: 2888γ to 2⁺. L(t,p)=2 for a 6838 *15* group suggests 2⁺ for any of the levels from 6824 to 6852.
6846 *2*	(0⁻ to 4⁻)		Mn	XREF: Others: AE E(level): from (α,pγ). Jπ: 1762γ to (2)⁻.
6852 *1*	(1,2⁺)		Mn P	XREF: Others: AE E(level): from (α,pγ). Jπ: 3475γ to 0⁺.
6869.9 *5*	(2⁻,3,4⁺)		LM P	XREF: Others: AE Additional information 33. Jπ: 4702γ to 2⁺, 1993γ to 3⁻, 5057.7γ from 4⁻.
6903.8 *9*	2⁻,3⁻	6.2 fs *21*	M PQ	XREF: Others: AE Additional information 34. Jπ: L(^{3}He,d)=1+3 from 3/2⁺; 2967γ to 2⁺ and 2424γ to 4⁻.
6947.9 *9*	(2⁺)		MN P	Additional information 35. Jπ: 3571γ to 0⁺; L(t,p)=(2) from 0⁺.
7046 *2*	(3⁻,4⁺)		LM P	E(level): weighted average of 7047 *2* from (α,pγ) and 7045 *2* from (p,γ):resonances. Jπ: 4878γ to 2⁺, 2566γ to 4⁻; primary γ 4256 from 5⁻ in (p,γ):resonances.
7060 *15*	0⁺		l N	XREF: l(7070). E(level): from (t,p). Jπ: L(t,p)=0 from 0⁺.
7070.19 *24*	(6)⁻	51 fs *14*	EF lM	Jπ: 2483.9γ M1+E2 to 5⁻ and 437.8γ from 7⁻ favors J^π(7070)=6⁻. Assignment of J^π=5⁻ from γ(θ) and RUL in (α,pγ) is inconsistent with J^π=6⁻ from γ(DCO) in (^{28}Si,α2pγ). It should be noted that 2483.9γ(DCO) in (^{28}Si,α2pγ) are also marginally consistent with ΔJ=0 giving 5⁻ as in (α,pγ) and also with ΔJ=2 giving 7⁻, the latter ruled out by 2590γ to 4⁻ and RUL. In the opinion

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				of the evaluator, the spin of this level needs reinvestigation. Here the evaluator have adopted $J^\pi=(6)^-$, but $J^\pi=5^-$ can not be ruled out.
				$T_{1/2}$: from (α,pγ).
7100.8 *5*	(1^- to 4^+)	12 fs *5*	lM P v	XREF: l(7070)v(7120).
				Additional information 36.
				J^π: 4933γ to 2^+, 4072γ from 3^-. L(d,^{3}He)=2 gives 0^+,1^+,2^+,3^+ for 7100.8 and/or 7128.
7128 *1*	(1^- to 4^+)		M v	XREF: v(7120).
				E(level): from (α,pγ).
				J^π: 4960γ to 2^+ and 3318γ to 3^-.
7181 *2*	($1,2^+$)		lM	XREF: l(7192).
				E(level): from (α,pγ).
				J^π: 7180γ to 0^+.
7192.2 *5*	(2^-,3,4)		lM P	Additional information 37.
				J^π: 2315γ to 3^-, 2712γ to 4^-, 4319.2γ from (2).
7233.8 *17*	(1^- to 4^+)		M P	E(level): weighted average of 7235 *2* from (α,pγ) and 7233.0 *17* from (p,γ):resonances.
				J^π: 5066γ to 2^+, 4189.9γ from (3^-).
7236 *2*	(2^+)		MN P	XREF: N(7249).
				E(level): weighted average of 7234 *2* from (α,pγ) and 7238 *2* from (p,γ):resonances.
				J^π: 7235γ to 0^+; L(t,p)=2 from 0^+ for a level at 7249.
7288.32[@] *24*	6^+	27 fs *13*	E KlM P	J^π: 1939.4γ ΔJ=2 E2 to 4^+; 879.9γ to 6^+ and 2704γ to 5^-.
				$T_{1/2}$: weighted average of 53 fs *20* in (α,pγ) and 21 fs *10* in (p,γ):resonances.
7289.6 *8*	(3^-,4^+)	>55 fs	lMN P	XREF: N(7306).
				Additional information 38.
				J^π: L(t,p)=3,4 from 0^+ for a level at 7306.
7334 *2*	(1^- to 4^+)		Mn P	E(level): weighted average of 7335 *1* from (α,pγ), 7336 *15* from (t,p), and 7329 *2* from (p,γ):resonances.
				J^π: 3524γ to 3^- and 5166γ to 2^+.
7350 *1*	(3^-,4^+)		LMn P	XREF: n(7336).
				E(level): from (α,pγ).
				J^π: 1100γ to 2^+ and 2764γ to 5^-.
7365 *2*			P	Additional information 39.
7370 *2*	(1^+)		M P S	XREF: S(7381).
				Additional information 40.
				J^π: 7369γ to 0^+; M1 excitation in (e,e′) for a level at 7381.
7376 *1*	(2^+,3,4^+)		M	J^π: 1126γ to 2^+ and 2027γ to 4^+.
7431.0 *3*	(2^-,3,4^+)	13 fs *8*	M P	Additional information 41.
				J^π: 5263γ to 2^+; primary 3742γ and 4375γ from 3^- and weak 4497γ from 4^-.
7452 *2*	(1^- to 4^+)		LM P	E(level): weighted average of 7452 *2* from (α,pγ) and 7451 *2* from (p,γ):resonances.
				J^π: 2575γ to 3^- and 5284γ to 2^+.
7485 *3*	(3^-,4^+)		MN	E(level): from (α,pγ).
				J^π: 1826γ to 5^-; L(t,p)=3,4 from 0^+.
7491.3[&] *5*	(6^+)		E	J^π: 1833γ to 5^-, 2142γ to 4^+; 2046γ from $8^{(+)}$; band member.
7497 *1*	($3,4,5^-$)		J M P	XREF: P(?).

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
				E(level): from (α,pγ). Jπ: 3017γ to 4⁻, 3687γ to 3⁻ and 1444γ to (4⁺).
7508.12[b] *22*	7⁻	≥42 fs	EF H LM	Jπ: 2922.6γ ΔJ=2 E2 γ to 5⁻; 1100γ to 6⁺. $T_{1/2}$: from (α,pγ); <1.4 ps in ^{27}Al(^{14}N,n2pγ).
7528 *2*	(3⁻ to 7⁻)		Mn	XREF: n(7544). E(level): from (α,pγ). Jπ: 1869γ and 2942γ to 5⁻.
7539 *2*	(3,4,5)	43 fs *24*	Mn P	E(level): weighted average of 7539 *2* from (α,pγ), 7544 *15* from (t,p), and 7538 *2* from (p,γ):resonances. Jπ: 1486γ to (4⁺) and 3059γ to 4⁻.
7628? *8*	(1,2⁺)		J	Jπ: 7628γ to 0⁺.
7648? *8*	(1,2⁺)		J	Jπ: 7648γ to 0⁺.
7663 *2*	(2⁺ to 6⁺)		M	E(level): from (α,pγ). Jπ: 2314γ to 4⁺.
7667 *1*	(3⁻ to 7⁻)		M	E(level): from (α,pγ). Jπ: 2008γ to 5⁻.
7683 *2*	(3⁻,4⁺)	10 fs *6*	LMN P	XREF: N(7700). E(level): weighted average of 7684 *2* from (α,pγ) and 7681 *2* from (p,γ):resonances. Jπ: 3203γ to 4⁻ and 5515γ to 2⁺; L(t,p)=(3,4) from 0⁺ for a level at 7700.
7702 *1*	(1⁺)		M S	XREF: S(7721). Jπ: 7701γ to 0⁺; M1 excitation in (e,e′).
7786 *1*	(2⁻ to 6⁻)		M	Jπ: 3306γ to 4⁻.
7828 *2*	(1⁻ to 5⁻)		M	Jπ: 4018γ to 3⁻.
7857 *2*	(1⁻,2⁺)		lMn	E(level): from (α,pγ). Jπ: 4047γ to 3⁻ and 7856γ to 0⁺.
7858.9 *5*	(6)		E lMn	Jπ: 1184.5γ ΔJ=1 d to 5⁻.
7893.4 *13*	(1⁺,2⁺)	<3.5 fs	lM P S	XREF: S(7877). Additional information 42. Jπ: 7893γ to 0⁺; M1,E2 excitation in (e,e′).
7899 *2*	(3⁻ to 7⁻)		lM	E(level): from (α,pγ). Jπ: 1225γ to 5⁻.
7911 *1*	(3⁻,4⁺)		MN	XREF: N(7920). E(level): from (α,pγ). Jπ: γ′s to 2⁺ and 5⁻; L(t,p)=(3,4) from 0⁺ for a level at 7920.
7992 *2*	(1⁻,2,3⁻)	<4 fs	J M P	E(level): from (α,pγ) and (p,γ):resonances. Jπ: 5824γ to 2⁺; primary 2405γ and 3210γ from 1⁻, 3358γ from 3⁻ in (p,γ):resonances. $T_{1/2}$: from (α,γ):resonances (1981BuZY).
8068 *1*	(3⁻,4⁺)		lMN	XREF: N(8050). E(level): from (α,pγ). Jπ: 4258γ to 3⁻; L(t,p)=3,4 from 0⁺ for a group at 8050.
8077.20 *22*	7⁺	0.11 ps *3*	EF H lM	Jπ: 1669.0γ ΔJ=1 M1+E2 γ to 6⁺; 492.6γ M1(+E2) from 8⁺. $T_{1/2}$: from (α,pγ).
8106 *2*	(0⁺ to 4⁺)		Mn	E(level): from (α,pγ). Jπ: 5938γ to 2⁺.
8124 *1*	(3⁻ to 6⁺)		Mn	XREF: n(8111). E(level): from (α,pγ). Jπ: 2774γ to 4⁺ and 3538γ to 5⁻.
8125.0[a] *4*	(6⁻)		E M	Jπ: 1055γ ΔJ=(0) (M1+E2) to (6)⁻.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	T1/2[#]	XREF	Comments
8181 *2*	(3⁻,4⁺)		MN	E(level): from (α,pγ). Jπ: 6013γ to 2⁺; L(t,p)=3,4 from 0⁺ for a 8185 group.
8215 *2*	(3⁻ to 7⁻)		M	E(level): from (α,pγ). Jπ: 2556γ to 5⁻.
8233 *2*	(1⁻)		LMn S	XREF: S(8240). E(level): from (α,pγ). Jπ: 8232γ to 0⁺; E1 excitation in (e,e′).
8261 *2*	(3⁻ to 6⁻)		Mn	E(level): from (α,pγ). Jπ: 3781γ to 4⁻ and 2602γ to 5⁻.
8311 *2*	(1⁺)		M S	E(level): from (α,pγ). Jπ: 6143γ to 2⁺ and 4501γ to 3⁻; 1⁺ is suggested by M1 excitation in (e,e′).
8353 *3*	(1,2⁺)		lM	XREF: l(8370). E(level): from (α,pγ). Jπ: 8352γ to 0⁺.
8391 *2*	(2⁺)		lMN S	XREF: l(8370)N(8405)S(8409). E(level): from (α,pγ). Jπ: 8390γ to 0⁺; E2 excitation in (e,e′).
8417 *2*	(3⁻ to 7⁻)		Mn	XREF: n(8405). E(level): from (α,pγ). Jπ: 2758γ to 5⁻.
8481 *2*	(3⁻ to 6⁻)		M	E(level): from (α,pγ). Jπ: 3895γ to 5⁻ and 4001γ to 4⁻.
8491.1 *4*	(6⁻)		EF LM	Jπ: (5,7) is assigned in (α,pγ) based on an assignment of J^{π}(7070)=5⁻ 1421γ(θ) to 7070 level which is consistent with ΔJ=0 or 2 and 1421γ(DCO) in (^{28}Si,α2pγ) is consistent ΔJ=1, but for large D+Q admixture, it can also be consistent with ΔJ=0. The evaluator has adopted ΔJ=0 for 1421γ to 7070 level and assigned J^{π}(8491)=(6⁻) based on J^{π}(7070)=(6)⁻ not 5⁻ (see comment there).
8517 *2*	(1,2⁺)		lMn	E(level): from (α,pγ). Jπ: 8516γ to 0⁺.
8520 *3*	(3⁻ to 6⁻)		lMn	E(level): from (α,pγ). Jπ: 4040γ to 4⁻ and 3934γ to 5⁻.
8569.59 *19*	8⁺	<0.6 ps	EF H M	Jπ: 2161.0γ ΔJ=2 E2 to 6⁺, 1061.4γ to 7⁻. Additional information 43. T1/2: from ^{24}Mg(^{16}O,2pγ).
8595 *2*	(3⁻ to 7⁻)		M	E(level): from (α,pγ). Jπ: 2936γ and 4009γ to 5⁻.
8650 *2*	(3⁻ to 6⁺)		M	E(level): from (α,pγ). Jπ: 2991γ to 5⁻ and 2597γ to (4⁺).
8668 *4*	2⁺		MN	XREF: N(8680). E(level): from (α,pγ). Jπ: L(t,p)=2 from 0⁺; 3791γ to 3⁻.
8783 *2*	(3⁻ to 7⁻)		Mn	E(level): from (α,pγ). Jπ: 3124γ to 5⁻.
8789 *3*	(4⁻ to 7⁻)		Mn	E(level): from (α,pγ). Jπ: 2115γ to 5⁻ and 1719γ (6)⁻.
8800 *2*	(2⁻ to 6⁻)	<3.5 fs	lMn P	E(level): from (α,pγ). Jπ: primary 3128γ from 4⁻.
8809 *2*	(4⁺ to 8⁺)		lMn	E(level): from (α,pγ). Jπ: 2401γ to 6⁺.
8828 *2*	(3⁻ to 7⁻)		Mn	E(level): from (α,pγ). Jπ: 4242γ to 5⁻.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
8875 *4*	(3⁻ to 6⁻)		M X	E(level): from (α,pγ). Jπ: 4395γ to 4⁻, 3216γ and 4289γ to 5⁻.
8944 *2*	(4⁺ to 7⁻)		Mn	E(level): from (α,pγ). Jπ: 3285γ to 5⁻ and 2536γ to 6⁺.
8956 *2*	(4⁻ to 7⁻)		Mn	E(level): from (α,pγ). Jπ: 4370γ to 5⁻ and 1886γ to (6)⁻.
8972.85[c] *21*	7⁻	<28 fs	EF H LM	Jπ: 4386.2γ ΔJ=2 E2 to 5⁻, 2564.4γ E1+M2 to 6⁺. $T_{1/2}$: <28 fs from DSAM for 4386γ in ^{35}Cl(α,pγ) (1976Gl10). Other: 4.2 ps *14* for 2564γ in ^{27}Al(^{16}O,αpγ) (1976Ko10) is discrepant, where the 2564γ was placed from 10174 level. Reversed ordering (proposed by 1976Gl10) of the 1201-2564 cascade defined a level at 8973 instead of 7610.
8998 *2*	(4⁺,5,6⁻)		MN P	XREF: N(9029). E(level): from (α,pγ). Jπ: 2590γ to 6⁺ and primary 2930γ from 4⁻ in (p,γ):resonances.
9072 *2*	(4⁻,5,6⁺)		Mn	XREF: n(9100). E(level): from (α,pγ). Jπ: γ's to (5)⁻, (6)⁻ and (3⁻,4⁺).
9077 *2*	(1⁻ to 5⁻)		Mn	XREF: n(9100). E(level): from (α,pγ). Jπ: 4200γ to 3⁻.
9087 *3*	(3⁻ to 7⁻)		Mn	XREF: n(9100). E(level): from (α,pγ). Jπ: 3428γ and 4501γ to 5⁻.
9100 *2*	(1,2⁺)		Mn	E(level): from (α,pγ). Jπ: 9099γ to 0⁺.
9158 *2*	(0⁺ to 4⁺)		M	E(level): from (α,pγ). Jπ: 6990γ to 2⁺.
9170 *2*	(3⁻ to 6⁻)		MN	E(level): from (α,pγ). Jπ: 4690γ to 4⁻ and 4584γ to 5⁻.
9199 *3*	(4⁻ to 8⁻)		M	E(level): from (α,pγ). Jπ: 1074γ to (6⁻).
9204 *4*	(0⁺ to 4⁺)		M	E(level): from (α,pγ). Jπ: 7036γ to 2⁺.
9260 *4*	(0⁺ to 4⁺)		M	E(level): from (α,pγ). Jπ: 7092γ to 2⁺.
9293 *2*	(3⁻ to 7⁻)		Mn	E(level): from (α,pγ). Jπ: 4707γ to 5⁻.
9300 *4*	(0⁺ to 4⁺)		Mn	E(level): from (α,pγ). Jπ: 7132γ to 2⁺.
9330 *2*	(4⁺ to 8⁺)		M	E(level): from (α,pγ). Jπ: 2922γ to 6⁺.
9339.2[@] *4*	8⁺	73 fs *17*	E KlM	Jπ: 2051.3γ ΔJ=2 E2 to 6⁺, 835.3γ from 9⁻; band member. $T_{1/2}$: from (α,pγ).
9349.6 *11*	(7⁻)		E lM	Jπ: γ's to 5⁻ and 6⁺.
9374 *2*	(3⁻ to 7⁻)		MN	XREF: N(9401). E(level): from (α,pγ). Jπ: 4788γ to 5⁻.
9431	(1⁺)		S	E(level): from (e,e′). Jπ: M1 excitation in (e,e′).
9437 *2*	(3⁻ to 7⁻)		MN	E(level): from (α,pγ). Jπ: 3778γ to 5⁻.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	T$_{1/2}$[#]	XREF	Comments
9460 *2*	(3$^-$ to 7$^-$)		MN	XREF: N(9481). E(level): from (α,pγ). Jπ: 4874γ to 5$^-$.
9535 *20*	2$^+$		N	Jπ: L(t,p)=2 from 0$^+$.
9537.0[&] *4*	8$^{(+)}$		E LM	Additional information 44. Jπ: 967.4γ ΔJ=0 d to 8$^+$, 2248γ and 3128γ to 6$^+$; band member.
9597 *5*	1$^-$		J S	XREF: S(9603). Jπ: 9596γ ΔJ=1 d to 0$^+$; E1 excitation in (e,e′).
9644 *2*	(5$^-$ to 9$^-$)		Mn	XREF: n(9623). E(level): from (α,pγ). Jπ: 2136γ to 7$^-$.
9645	(1$^-$)		n S	XREF: n(9623). Jπ: E1 excitation in (e,e′).
9647 *2*	(2$^-$ to 6$^-$)		Mn	XREF: n(9623). E(level): from (α,pγ). Jπ: 3045γ to 4$^-$.
9655 *2*	(3$^-$ to 7$^-$)		M	E(level): from (α,pγ). Jπ: 3996γ to 5$^-$.
9669 *2*	(3$^-$ to 7$^-$)		M	E(level): from (α,pγ). Jπ: 4010γ to 5$^-$.
9689 *5*	1$^-$		J	Jπ: 9688γ D to 0$^+$ and 5752γ D(+Q) to 2$^+$; π=natural for resonant states in (α,γ):resonances.
9720 *20*	2$^+$		N	Jπ: L(t,p)=2 from 0$^+$.
9797 *5*	3$^-$		J N	XREF: N(9770). Jπ: spin from γ(θ) in (α,γ):resonances, π=natural for resonant states.
9811 *5*	1$^-$		J	Jπ: spin from γ(θ) in (α,γ):resonances, π=natural for resonant states.
9829 *2*	(4$^-$ to 8$^-$)		M	E(level): from (α,pγ). Jπ: 2759γ to (6)$^-$.
9894 *5*	2$^+$		J N	XREF: N(9863). Jπ: 9893γ ΔJ=2 to 0$^+$, π=natural for resonant states in (α,γ):resonances.
9917 *5*	1$^-$	12 fs *10*	J	Jπ: 9916γ D to 0$^+$, π=natural in (α,γ):resonances. T$_{1/2}$: DSAM in (α,γ) (1981BuZY).
9923 *20*	(3$^-$,4$^+$)		N	Jπ: L(t,p)=3,4 from 0$^+$.
9934.0 *8*	(9$^+$)		E LM	Jπ: 1364γ ΔJ=1 γ to 8$^+$.
9951 *5*	2$^+$		J	Jπ: spin from γ(θ) in (α,γ):resonances, π=natural for resonant states.
9996 *5*	1$^-$		J N	XREF: N(10003). Jπ: 9995γ D to 0$^+$, π=natural for resonant states in (α,γ):resonances.
10024.9[a] *5*	(8$^-$)		E M	Jπ: 1900γ ΔJ=2 to (6$^-$), 1948γ to 7$^+$; band member.
10034 *5*	1$^-$		J	Jπ: 10034γ D to 0$^+$, π=natural for resonant states in (α,γ):resonances.
10047 *5*	(1$^-$)		J n S	XREF: S(10058). Jπ: E1 excitation in (e,e′); 5481γ to 2$^+$.
10067 *5*	3$^-$		J n	Jπ: spin from γ(θ) in (α,γ):resonances, π=natural for resonant states.
10101 *2*	(3$^-$ to 7$^-$)		Mn	E(level): from (α,pγ). Jπ: 4452γ and 5515γ to 5$^-$.
10112 *2*	(4$^+$ to 8$^+$)		Mn	E(level): from (α,pγ). Jπ: 3703γ to 6$^+$; L(t,p)=3,4 for a 10100 *20* group.
10118	(1$^-$)		S	Jπ: E1 excitation in (e,e′).

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	T$_{1/2}$[#]	XREF	Comments
10120 *2*	(6,7,8)		M	E(level): from (α,pγ). Jπ: 2612γ to 7⁻ and 2043γ to 7⁺.
10135 *2*	(5⁻ to 9⁻)		M	E(level): from (α,pγ). Jπ: 2627γ to 7⁻.
10146 *10*	2⁺		J	Jπ: 10146γ ΔJ=2 to 0⁺, π=natural for resonant states in (α,γ):resonances.
10170 *5*	3⁻		J l N	XREF: N(10182). Jπ: spin from γ(θ) in (α,γ):resonances, π=natural for resonant states.
10174.29[c] *21*	9⁻	2.8 ps *5*	EF HI lM	Jπ: 1201.32γ ΔJ=2 E2 to 7⁻, 1604.67γ ΔJ=1 E1+M2 γ to 8⁺. Additional information 45. T$_{1/2}$: weighted average of 4.6 ps *14* from (^{14}N,n2pγ) and 2.6 ps *4* from (^{16}O,2pγ).
10181 *2*	(5⁻ to 9⁻)		M	E(level): from (α,pγ). Jπ: 2673γ to 7⁻.
10182 *20*	(3⁻,4⁺)		N	Jπ: L(t,p)=3,4 from 0⁺.
10184 *5*	1⁻	19 fs *10*	J	Jπ: 10183γ D to 0⁺, π=natural for resonant states in (α,γ):resonances. T$_{1/2}$: DSAM in (α,γ):resonances (1981BuZY).
10.2×10^3 *1*	(2⁺)		K	Jπ: L(^{3}He,t)=2 from 0⁺.
10207	(1⁺)		S	Jπ: M1 excitation in (e,e′).
10217 *5*	(0⁺ to 4⁺)		J	Jπ: 5651γ to 2⁺.
10245 *2*	(5⁻ to 8⁻)		M	E(level): from (α,pγ). Jπ: 2737γ to 7⁻, 1754γ to (6⁻).
10245 *10*	(0⁺ to 4⁺)		J	Jπ: 6308γ and 8077γ to 2⁺.
10255 *5*	1⁻		J	Jπ: 10254γ D to 0⁺, π=natural for resonant states in (α,γ):resonances.
10274 *2*	(4⁺ to 8⁺)		M	E(level): from (α,pγ). Jπ: 2986γ to 6⁺.
10316 *2*	(3⁻ to 7⁻)		M	E(level): from (α,pγ). Jπ: 5730γ to 5⁻.
10335 *5*	1⁻		J	Jπ: 10333γ D to 0⁺, π=natural for resonant states in (α,γ):resonances.
10382 *5*	(1⁻ to 4⁺)		J	Jπ: 6571γ to 3⁻ and 8214γ to 2⁺.
10398 *4*	1⁻	12 fs *11*	J n	E(level): 10393 *5* from (α,γ):resonances. Jπ: 10400γ D to 0⁺, π=natural for resonant states in (α,γ):resonances. T$_{1/2}$: DSAM in (α,γ) (1981BuZY).
10431 *5*	1⁻	26 fs *12*	J n	Jπ: 10429γ D to 0⁺, π=natural for resonant states in (α,γ):resonances. T$_{1/2}$: DSAM in (α,γ) (1981BuZY).
10443 *2*	(4⁺ to 8⁺)		Mn	E(level): from (α,pγ). Jπ: 3155γ to 6⁺.
10455 *2*	(5⁻ to 8⁺)		LM	E(level): from (α,pγ). Jπ: 2947γ to 7⁻ and 4046 to 6⁺.
10494 *5*	1⁻		J	Jπ: spin=1 from γ(θ) in (α,γ):resonances, π=natural for resonant states.
10495	(1⁺)		S	Jπ: M1 excitation in (e,e′).
10507 *5*	(1,2⁺)		J	Jπ: 10505γ to 0⁺.
10516 *5*	(0⁺)		J N	XREF: N(10510). Jπ: L(t,p)=(0) from 0⁺.
10547 *5*	(0⁺)		J N	XREF: N(10550). Jπ: L(t,p)=(0) from 0⁺.
10557 *2*	(5⁻ to 9⁻)		M	Jπ: 3049γ to 7⁻.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
10587 *5*	1^-	18 fs *11*	J n	XREF: n(10595). Jπ: 10585γ D to 0^+, π=natural in (α,γ):resonances. $T_{1/2}$: DSAM in (α,γ):resonances (1981BuZY).
10589 *2*	(4^+ to 7^-)		Mn	XREF: n(10595). E(level): from (α,pγ). Jπ: 6003γ to 5^- and 4180γ 6^+.
10611 *5*	(1^- to 4^+)		J n	XREF: n(10595). Jπ: 5453γ to 2^+ and 5097γ to 3^-. E(level): triplet.
10631.3 *20*	(2^-)		l PQ	Jπ: 4774γ and 5547γ to $(2)^-$; possible IAS of ^{38}Cl g.s., $J^\pi=2^-$ in (^{3}He,d). Possible T=2.
10634 *2*	(6^+ to 10^+)		lM	Jπ: 2064γ to 8^+.
10657.9 *5*		<300 eV	P	
10666 *5*	(1^-,2^+,3^-,4^+)		J	Jπ: 6100γ and 6730γ to 2^+, 6855γ to 3^-, π=natural in (α,γ):resonances.
10673	(2^-)		S	Jπ: M2 excitation in (e,e′).
10676 *2*	(4^+ to 8^+)		Mn	E(level): from (α,pγ). Jπ: 4267γ to 6^+.
10684 *5*	1^-		J n	Jπ: 10682γ D to 0^+, π=natural in (α,γ):resonances.
10726 *5*	(1^- to 4^+)		J	Jπ: 8557γ to 2^+ and 5212γ to 3^-.
10732.4 *6*		<300 eV	P	
10768 *5*	2^+		J	Jπ: spin from γ(θ) and π=natural in (α,γ):resonances.
10803 *5*	2^+		JK	Jπ: 10801γ ΔJ=2 Q to 0^+, π=natural in (α,γ):resonances; L(^{7}Li,t)=2 from 0^+.
10815.6 *9*	(0 to 3^-)		P	Jπ: 4043γ and 4462γ to 1^-.
10816.2 *9*			P	γ′s from this level are unresolved from those associated with the 10815.6 level.
10827.0 *6*	(2)		P	Jπ: 10825γ to 0^+ and 6347γ to 4^-.
10850.1 *7*	(2^-,3^-)		P	Jπ: 4276γ and 5116γ to 1^-, 4640γ to 4^-.
10857 *5*	1^-		J	Jπ: 10855γ D to 0^+, π=natural in (α,γ):resonances.
10873.8 *5*	(0^+ to 3^-)		P	Jπ: 4520γ to 1^-, 5279γ and 5716γ to 2^+.
10890 *2*	(5^- to 8^-)		M	E(level): from (α,pγ). Jπ: 3382γ to 7^- and 2765γ (6^-).
10914.5 *5*	(1^-,2,3^-)	<0.2 keV	P	Jπ: 4561γ to 1^-, 5089γ and 5401γ to 3^-.
10933 *10*	1^-		J	Jπ: 10931γ D to 0^+, π=natural in (α,γ):resonances.
10945.0 *5*	(1^-,2^+)	<0.2 keV	P	Jπ: 10943γ to 0^+ and 5431γ to 3^-.
10947.4 *5*	(2^-,3,4^+)	<0.2 keV	P	Jπ: 6381γ to 2^+ and 4738γ to 4^-.
10947.5[b] *7*	(9^-)		E LM	Jπ: 2378γ ΔJ=1 d to 8^+, 773γ to 9^-, 3439γ to 7^-.
10962.3 *6*		<0.2 keV	P	
10963.3 *6*	$2^{(+)}$		P	Jπ: spin from γ(θ) in (p,γ):resonances, 7586γ to 0^+ and 5614γ to 4^+.
10967.5 *6*			P	
10979.9 *6*			P	E(level): probable doublet.
10988.2 *7*	(2)	<0.2 keV	P	Jπ: (2,3) from γ(θ) in (p,γ):resonances, 7611γ to 0^+ and 6508γ to 4^-.
11000.2 *6*			P	
11005.9 *6*			P	
11013 *7*	1		J	Jπ: 11011γ D to 0^+, π=natural in

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
				(α,γ):resonances. This level could correspond to 11000.2, 11005.9 and 11014.6 levels in (p,γ):resonances.
11014.6 *6*			P	
11023.2 *6*			P	
11032 *6*	1^-		J	Jπ: 11030γ D to 0^+, π=natural in (α,γ):resonances. This level could correspond to 11023.2 in (p,γ):resonances.
11044.2 *6*		<0.2 keV	P	Jπ: see comment for 11045.1 level.
11045.2 *6*	(3^-)	<0.2 keV	J P	Jπ: 8877γ D+Q to 2^+; γ(θ) in (α,γ):resonances gives 3^- for unresolved 11044.2 and 11045.2 levels.
11051.5 *6*		<0.2 keV	P	
11053.7 *6*	(2)	<0.2 keV	P	Jπ: 11052γ to 0^+, 5540γ to 3^-, 4844γ to 4^-.
11059.2 *6*	$(1,2^+)$	<0.2 keV	P	Jπ: 11058γ and 6349γ to 0^+, 6493γ and 8891γ to 2^+.
11066.1 *6*	(2)	<0.2 keV	P	Jπ: 6356γ and 11064γ to 0^+, 6586γ to 4^-.
11067 *10*	1^-		J	Jπ: 11065γ D to 0^+, π=natural in (α,γ):resonances.
11068 *2*			M	E(level): from (α,pγ). 2943γ to (6^-) suggests that this level is different from 11067, 1^- level.
11078 *2*			M	E(level): from (α,pγ).
11083.7 *6*			P	
11087 *2*	$(4^+$ to $8^+)$		M	E(level): from (α,pγ). Jπ: 3798γ to 6^+.
11095.4 *6*			P	
11096.9 *6*	(2^+)	<0.2 keV	P	Jπ: 7719γ and 11095γ to 0^+, 5747γ to 4^+; π=natural from ^{37}Cl(p,α):res.
11099.1 *6*			P	
11106.9 *6*			P	
11107.1 *6*			P	
11109 *2*	$(4^-$ to $8^-)$		M	E(level): from (α,pγ). Jπ: 2984γ to (6^-).
11112.9 *6*		<0.2 keV	P	E(level): probable doublet. Jπ: π=natural from ^{37}Cl(p,α):res.
11116.9 *6*	3^-	<0.2 keV	P	Jπ: from (p,α(θ)) in (p,γ):resonances.
11122.9 *6*	3^-		J P	Jπ: 8954γ ΔJ=1 d+Q to 2^+, 6642γ to 4^-, π=natural in ^{37}Cl(p,α):res.
11124.9 *6*		<0.2 keV	P	
11135.0 *6*			P	
11136.4 *6*			P	
11144.4 *6*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11146.0 *6*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11146.9 *6*	$(2,3^-)$		P	Jπ: 11145γ to 0^+, 5797γ to 4^+ and 6666γ to 4^-.
11157.6 *7*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11161.0 *6*	$(2^-,3,4^+)$	<0.2 keV	P	Jπ: 7224γ to 2^+, 4559γ and 4951γ to 4^-.
11163 *2*	(6,7,8)		M	E(level): from (α,pγ). Jπ: 3086γ to 7^+ and 3655γ to 7^-.
11167.6 *6*	(3^-)	<0.2 keV	P	Jπ: from γ(θ) in (p,γ):resonances; 11166γ to 0^+, 4958γ to 4^-.
11173.0 *6*	3^-	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 7795γ to 0^+, 4571γ to 4^- and 5119γ to (4^+);
11174 *2*	$(5^-$ to $9^-)$		LM	E(level): from (α,pγ). Jπ: 2201γ to 7^-.
11175 *10*	1^-		J	Jπ: 11173γ D to 0^+, π=natural in (α,γ):resonances.
11182.6 *6*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11184.8 *6*	$(2^+,3^-)$	<0.2 keV	P	Jπ: (2,3) from γ(θ) in (p,γ):resonances, π=natural

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
				from ^{37}Cl(p,α):res.
11188.6 *6*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11197.6 *6*	(1⁻,2,3⁻)	<0.2 keV	P	Jπ: 4425γ and 4844γ to 1⁻, 5684γ to 3⁻.
11199 *2*	(8,9,10⁺)		M	E(level): from (α,pγ). Jπ: 2629γ to 8⁺.
11200.5 *6*			P	
11201.9 *6*	1⁻	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11204.3 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11210.4 *7*	(1⁻,2,3⁻)	<0.2 keV	P	Jπ: 4437γ and 4636γ to 1⁻, 5385γ and 5697γ to 3⁻.
11214.7 *6*	(1⁻,2⁺)	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 6505γ and 11213γ to 0⁺, 6057γ and 6649γ to 2⁺.
11216.4 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11217.9 *6*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11226.0 *6*			P	
11227.3 *4*	(2⁺)	<0.2 keV	P	Jπ: (1,2,3) from (p,γ(θ)); 11226γ to 0⁺ and 5877γ to 4⁺.
11233.6 *7*	(2⁺,3⁻)	<0.2 keV	P	Jπ: 11232γ to 0⁺ and 5575γ to 5⁻; π=natural from ^{37}Cl(p,α):res.
11244.8 *6*	(3⁺)	<0.2 keV	P	Jπ: 4995γ to 2⁺, 4968γ to 4⁺ and 5035γ to 4⁻, 3875γ to (1⁺).
11250 *10*	1⁻		J	Jπ: 11248γ D to 0⁺; π=natural in (α,γ):resonances.
11259.8 *6*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11262.4 *6*			P	
11264.9 *6*	(2⁻,3⁻)	<0.2 keV	P	Jπ: 4492γ, 4690γ and 4911γ to 1⁻, 6784γ to 4⁻.
11268.1 *6*	3⁻	<0.2 keV	J P	Jπ: 3 from γ(θ) and π=natural in (α,γ):resonances.
11270.0 *6*	(1⁻,3⁻)	<0.6 keV	P	Jπ: from (p,α(θ)) in (p,γ):resonances.
11272.1 *6*	(3⁻)	<0.2 keV	P	Jπ: 5677γ to 2⁺, 5922γ to 4⁺ and 5062γ to 4⁻, 3902γ to (1⁺); π=natural from ^{37}Cl(p,α):res.
11275.5 *6*	(1⁻,2⁺)		P x	E(level): 11275.5 and 11275.7 are separate levels. Jπ: from α(θ) in (p,γ):resonances.
11275.7 *6*	(1,2⁺)	<0.2 keV	P x	Jπ: 6566γ and 11274γ to 0⁺, 5681γ to 2⁺.
11283.9 *6*			P x	Jπ: π=natural from ^{37}Cl(p,α):res.
11285.4 *6*	(2⁺,3)	<0.2 keV	P x	Jπ: 9117γ to 2⁺, 5428γ to (2)⁻ and 5936γ to 4⁺.
11287.2 *6*			P x	
11289.4 *6*	(3⁻)	<0.2 keV	P x	Jπ: 4715γ to 1⁻, 6809γ to 4⁻ and 5940γ to 4⁺.
11290 *2*	(7⁺ to 11⁺)		lM x	E(level): from (α,pγ). Jπ: 1356γ to (9⁺).
11291.5 *6*	(1⁻,2⁺)	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11292.0 *6*			P	
11298.7 *7*	(10⁺)		EF lM	Jπ: 1959.5γ ΔJ=2 Q to 8⁺, 1364γ ΔJ=1 d+Q to (9⁺).
11302.4 *5*	5⁻	<0.2 keV	Pq	T=1+2 XREF: q(11300). Jπ: from γ(θ,pol) in (p,γ):resonances; 5643γ M1+E2 to 5⁻; probable IAS of 671, 5⁻ in ^{38}Cl from (^{3}He,d).
11306.3 *6*	(1⁻,2⁺)	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11307.5 *6*	5⁻	<0.2 keV	Pq	T=1+2 XREF: q(11300). Jπ: from γ(θ,pol) in (p,γ):resonances; 5648γ M1+E2 to 5⁻; probable IAS of 671, 5⁻ in ^{38}Cl from (^{3}He,d).
11315 *10*	1⁻		J	Jπ: 11313γ D to 0⁺, π=natural in (α,γ):resonances.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
11316.7 *6*	(3⁻)	<0.2 keV	P	Jπ: (1⁻,3⁻) from α(θ) in (p,γ):resonances, 5658γ and 6730γ to 5⁻.
11318.7 *6*	(2⁺)	<0.2 keV	P	Jπ: 6609γ and 11317γ to 0⁺, 5969γ to 4⁺ and 6838γ to 4⁻.
11326.2 *6*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11327.3 *6*	(1⁻,2⁺)		P	Jπ: from α(θ) in (p,γ):resonances.
11328.3 *6*	(3⁻,4⁺)	<0.2 keV	P	Jπ: 9160γ to 2⁺ and 5669γ to 5⁻; π=natural from ^{37}Cl(p,α):res.
11330.1 *6*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11330.5 *6*	(1⁻ to 4⁺)	<0.2 keV	P	Jπ: 6173γ and 9162γ to 2⁺, 6453γ to 3⁻.
11338.6 *6*	(2⁺)	<0.2 keV	P	Jπ: (2,3) from γ(θ) in (p,γ):resonances; 11337γ to 0⁺ and 5513γ to 3⁻.
11348.9 *6*	(2⁻,3,4⁺)	<0.2 keV	P	Jπ: 7412γ and 9180γ to 2⁺, 6868γ to 4⁻.
11350.6 *6*	3⁻	<0.2 keV	Pq	T=1+2 Jπ: 9182γ E1(+M2) to 2⁺, 7540γ and 6473γ M1+E2 to 3⁻, 5074γ and 6001γ to 4⁺, 4749γ and 5141γ to 4⁻; π=natural from ^{37}Cl(p,α):res; possible IAS of 755, 3⁻ in ^{38}Cl from (^{3}He,d).
11354.6 *6*	3⁻	<0.2 keV	J Pq	T=1+2 E(level): possible doublet. Jπ: from α(θ) in (p,γ):resonances; possible IAS of 755, 3⁻ in ^{38}Cl from (^{3}He,d).
11359.4 *6*			P	
11361.9 *6*		<0.2 keV	P	
11367.4 *7*	3⁻	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11369.1 *7*			P	
11373.7 *7*	(1⁻,2,3⁻)	<0.2 keV	P	Jπ: 4799γ and 5639γ to 1⁻, 6496γ and 7563γ to 3⁻.
11374 *10*	1⁻		J	Jπ: 11372γ D to 0⁺, π=natural in (α,γ):resonances.
11375.6 *7*	4⁺	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11375.9 *7*			P	
11379 *2*	(4⁺ to 8⁺)		M	E(level): from (α,pγ). Jπ: 4970γ to 6⁺.
11379.1 *7*	(2⁺)	<0.2 keV	P	Jπ: (1⁻,2⁺) from α(θ) in (p,γ):resonances; 8001γ to 0⁺, 5103γ and 5337γ to 4⁺, 6898γ to 4⁻.
11383.1 *7*			P	
11383.4 *7*	(1⁻,2⁺)	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11384.9 *7*	3⁻		Pq	Jπ: from α(θ) in (p,γ):resonances; possible IAS of 755, 3⁻ in ^{38}Cl from (^{3}He,d). Possible T=2.
11389.9 *7*		<0.2 keV	P	
11393.0 *8*	3⁻	<0.2 keV	Pq	Jπ: from α(θ) in (p,γ):resonances; possible IAS of 755, 3⁻ in ^{38}Cl from (^{3}He,d). Possible T=2.
11399.5 *7*	(3⁻)	<0.2 keV	JK P	XREF: K(11400). Jπ: 9231γ D+Q to 2⁺; (α,γ(θ)); L(^{7}Li,t)=3 from 0⁺ for a group at 11400.
11401.5 *7*	(1⁻,2⁺)	<0.2 keV	P	Jπ: 6692γ and 11400γ to 0⁺, 7591γ to 3⁻.
11409.3 *7*	(2)	<0.2 keV	P	Jπ: 11408γ to 0⁺, 5200γ to 4⁻, 5133γ and 6059γ to 4⁺.
11422.7 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11423.9 *7*	(3⁻)	<0.2 keV	P	Jπ: 4849γ to 1⁻ and 6943γ to 4⁻; π=natural from ^{37}Cl(p,α):res.
11428 *2*	(4⁺ to 8⁺)		M	E(level): from (α,pγ). Jπ: 5019γ to 6⁺.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
11428.9 *7*	(3,4$^+$)	<0.2 keV	P	Jπ: 6271γ to 2$^+$, 6948γ to 4$^-$ and 5152γ and 6079γ to 4$^+$.
11431.9 *7*	1$^-$	<0.2 keV	J P	Jπ: 11430γ D to 0$^+$, π=natural in (α,γ):resonances.
11435.9 *7*	(2$^+$,3$^-$)	<0.2 keV	M P	Jπ: 11434γ and 6726γ to 0$^+$, 6849γ to 5$^-$.
11442.9 *7*	3$^-$		J P	Jπ: 9274γ ΔJ=1 d(+Q) to 2$^+$; 4841γ and 6962γ to 4$^-$; π=natural from ^{37}Cl(p,α):res.
11443.6 *7*	(2$^-$,3)	<0.2 keV	P	Jπ: (1,2,3) from γ(θ) in (p,γ):resonances; 4842γ to 4$^-$, 5390γ to (4$^+$), 5849γ and 9275γ to 2$^+$.
11452 *2*			M	E(level): from (α,pγ).
11452.7 *7*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11454.7 *7*			P	
11455.5 *7*			P	
11455.7 *7*			P	
11461.3 *8*	(1$^-$,2$^+$)	<0.2 keV	P	Jπ: 8084γ and 11459γ to 0$^+$, 7650γ to 3$^-$.
11463.3 *7*		<0.2 keV	P	
11466.2 *8*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11471.2 *7*	(1$^-$,2$^+$)	<0.2 keV	P	Jπ: 6761γ, 8093γ and 11469γ to 0$^+$, 7660γ to 3$^-$.
11478.4 *7*		<0.2 keV	P	See comment for 11478.9 level.
11478.9 *7*	(3$^-$)	<0.6 keV	P	Jπ: (1$^-$,3$^-$) from α(θ) in (p,γ):resonances; 5884γ to 2$^+$ and 5820γ to 5$^-$. γ transitions from either of the two levels: 11478.4 and/or 11478.9.
11482.4 *7*			P	
11483.4 *7*			P	
11484 *2*	(7$^-$ to 11$^-$)		M	E(level): from (α,pγ). Jπ: 1310γ to 9$^-$.
11487.2 *7*	(1$^-$,3$^-$)	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11493.6 *8*	2$^+$	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11495 *2*	(5$^+$ to 9$^+$)		M	E(level): from (α,pγ). Jπ: 3418γ to 7$^+$.
11501.3 *7*	(2$^+$)	<0.2 keV	P	Jπ: (1$^-$,2$^+$) from α(θ) in (p,γ):resonances; 6791γ, 8124γ and 11499γ to 0$^+$, 5292γ to 4$^-$.
11508.2 *7*	(1$^-$,2$^+$)	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11511.1 *7*			P	
11511.7 *7*	(2)		P	Jπ: 11510γ to 0$^+$, 5302γ and 7031γ to 4$^-$, 5235γ and 6162γ to 4$^+$.
11514.5 *7*	1$^-$	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 11513γ to 0$^+$, 6357γ to 2$^+$.
11518.6 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11519.7 *4*	(1$^-$,2$^+$,3$^-$)	<0.2 keV	P	Jπ: 4747γ to 1$^-$, 7709γ to 3$^-$; π=natural from ^{37}Cl(p,α):res.
11525.8 *7*		<0.2 keV	P	
11527.6 *7*	(1,2$^+$)	<0.2 keV	P	Jπ: 6818γ, 8150γ and 9359γ to 0$^+$.
11530.2 *7*	(1$^-$,2$^+$)	<0.2 keV	P	Jπ: 6820γ, 8152γ and 11528γ to 0$^+$; π=natural from ^{37}Cl(p,α):res.
11531.9 *7*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11534.2 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11538.3 *7*		0.33 keV *11*	P	
11540.2 *7*	1$^-$		P	Jπ: from α(θ) in (p,γ):resonances.
11543 *2*	(5$^+$ to 9$^+$)		M	E(level): from (α,pγ). Jπ: 3466γ to 7$^+$.
11544.5 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
11545.3 *7*	(1⁻,2)		P	Jπ: 11543γ to 0⁺ and 6032γ to 3⁻; π=natural from ^{37}Cl(p,α):res.
11547 *2*	(7⁻ to 11⁻)		M	E(level): from (α,pγ). Jπ: 1373γ to 9⁻.
11549.1[a] *4*	(10⁻)		E	Jπ: 1524.4γ ΔJ=2 Q to (8⁻); 1374.7γ ΔJ=1 d+Q to 9⁻.
11552.6 *7*	(1)⁻	<0.2 keV	P	Jπ: (0⁺,1⁻,2⁺) from α(θ) in (p,γ):resonances; 8175γ and 11551γ to 0⁺, 5727γ and 6675γ to 3⁻; L(p,p)=1 in (p,γ):resonances.
11558.1 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11558.4 *7*	(1⁺)	<0.2 keV	P S	XREF: S(11556). Jπ: M1 excitation in (e,e′).
11561.9 *7*		<0.2 keV	P	
11569.2 *7*	(1⁻,2,3⁻)	<0.2 keV	P	Jπ: 4995γ and 5835γ to 1⁻, 6055γ and 7758γ to 3⁻.
11574.0 *7*			P	
11578.1 *8*	(1⁻,2⁺)		P	Jπ: from α(θ) in (p,γ):resonances.
11579.4 *7*	(1⁻,2⁺)	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11581.2 *7*			P	
11582.1 *7*			P	
11592.9 *7*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11593.7 *7*		<0.2 keV	P	
11595 *2*	(4⁺ to 8⁺)		M	E(level): from (α,pγ). Jπ: 5186γ to 6⁺.
11597.9 *7*	4⁺	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 9429γ to 2⁺ and 5939γ to 5⁻; π=natural from ^{37}Cl(p,α):res.
11599.6 *8*	(1,2⁺)	<0.2 keV	P	Jπ: 11598γ to 0⁺, 5349γ and 9431γ to 2⁺, 5742γ to (2)⁻.
11605.8 *7*	(1,2⁺)	<0.2 keV	P	Jπ: 11604γ to 0⁺.
11607.3 *8*			P	Jπ: π=Natural from ^{37}Cl(p,α):res.
11608 *2*	(5⁺ to 9⁺)		M	E(level): from (α,pγ). Jπ: 3531γ to 7⁺.
11608.3 *8*	(1⁻,2⁺)		P	Jπ: from α(θ) in (p,γ):resonances.
11609.1 *7*			P	
11612.5 *7*			P	
11613.2 *7*			P	Jπ: π=Natural from ^{37}Cl(p,α):res.
11614.7[c] *3*	11⁻	4.9 ps *21*	EF H LM	Jπ: 1440.3γ ΔJ=2 E2 to 9⁻; band member. $T_{1/2}$: from ^{27}Al(^{14}N,n2pγ).
11615.8 *7*	1⁻	0.42 keV *16*	P	Jπ: from α(θ) in (p,γ):resonances.
11618.1 *7*		<0.2 keV	P	
11620 *2*	(7⁺ to 11⁺)		M	E(level): from (α,pγ). Jπ: 1686γ to (9⁺).
11622.7 *7*		<0.2 keV	P	
11623.5 *7*			P	
11624.8 *7*	(1⁻,2⁺)	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11630 *2*			M	E(level): from (α,pγ).
11641.1 *7*		<0.2 keV	P	
11643.3 *7*	(1⁻,2⁺)	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11643.4 *7*			P	
11645.3 *7*			P	
11647.0 *7*		<0.2 keV	P	
11650.9 *23*	(9⁻)		E	Jπ: 2301γ ΔJ=2 Q to (7⁻).
11651.4 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11652.1 *7*	(3,4⁺)	<0.2 keV	P	Jπ: 6057γ, 7086γ and 9483γ to 2⁺, 5442γ

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
				and 7171γ to 4⁻, 6302γ to 4⁺.
11653.9 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11656.6 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11660.0 *7*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11661.4 *7*			P	
11665.3 *7*			P	
11666.6 *7*		<0.2 keV	P	
11667.8 *7*		<0.2 keV	P	
11670.7 *7*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11672.3 *8*	(3)	<0.2 keV	P	Jπ: (2,3) from γ(θ) in (p,γ):resonances; 5070γ to 4⁻ and 5396γ to 4⁺.
11679.6 *7*			P	
11682.7 *7*	(4⁺)	<0.2 keV	P	Jπ: (4⁺,5⁻) from α(θ) in (p,γ):resonances; 5432γ and 7117γ to 2⁺, 7096γ to 5⁻.
11685.5 *7*		<0.2 keV	P	
11686.0 *7*	2⁺	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11686.9 *7*			P	
11695.7 *7*		<0.2 keV	P	
11701.8 *7*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11703.5 *7*	(3⁻,4⁺)	<0.2 keV	P	Jπ: 7137γ and 7766γ to 2⁺, 7117γ to 5⁻.
11706.5 *7*		<0.2 keV	P	
11709.2 *8*			P	
11710.0 *8*			P	
11712.3 *8*	4⁺	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11716	(1⁺)		S	Jπ: M1 excitation in (e,e′).
11716.6 *8*	(2⁺)	<0.6 keV	P	Jπ: 11715γ, 7007γ and 8339γ to 0⁺, 5507γ to 4⁻; π=natural from ^{37}Cl(p,α):res.
11722.6 *8*			P	
11723.4 *8*	(0 to 3)⁻	<0.2 keV	P	Jπ: L(p,p)=1 from 3/2⁺ in (p,γ):resonances. (2J+1)$Γ_p$=0.9 keV *3*.
11724.1 *8*			P	
11726.0 *8*			P	
11727.8 *8*	2⁺		P	Jπ: from α(θ) in (p,γ):resonances.
11728.2 *8*			P	
11731.2 *8*	(4⁺)	<0.6 keV	P	E(level): probable doublet from (p,γ):resonances (1974Al05). Jπ: (4⁺,5⁻) from α(θ) in (p,γ):resonances; 6136γ and 7165γ to 2⁺, 6072γ and 7145γ to 5⁻.
11736.5 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11737.1 *8*			P	
11738.9 *8*			P	
11739.3 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11742.9 *9*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11743.8 *8*	(1)⁻	0.7 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances; L(p,p)=1 from 3/2⁺.
11748.5 *8*		<0.2 keV	P	
11751.8 *8*			P	
11755.6 *8*	(3⁻,4⁺)	<0.2 keV	P	Jπ: 9587γ and 7818γ to 2⁺, 7275γ to 4⁻; π=natural from ^{37}Cl(p,α):res.
11758.7 *8*	(1,3)⁻		P	Jπ: π=natural from ^{37}Cl(p,α):res; L(p,p)=1 from 3/2⁺. (2J+1)$Γ_p$=0.36 keV *18*.
11765.1 *8*			P	
11765.9 *8*			P	
11766.4 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
11767.7 *8*		<0.2 keV	P	
11769.9 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11772.9 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11775.0 *8*	4^+	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 9606γ to 2^+, 4486γ to 6^+.
11780.7 *8*	$(1,2,3)^-$	<0.2 keV	P	Jπ: 5427γ to 1^-, 5955γ and 6267γ to 3^-; L(p,p)=1 from $3/2^+$. $(2J+1)\Gamma_p$=0.6 keV *2*.
11784.1 *8*	$(1^-,3^-)$	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11784.2 *8*		<0.2 keV	P	
11788.1 *8*	2^+		P	Jπ: from α(θ) in (p,γ):resonances.
11790.5 *8*	(2^+)	<0.2 keV	P	Jπ: 11789γ and 7081γ to 0^+, 5581γ to 4^-, and 5737γ to (4^+).
11791.0 *8*	1^-	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11794.5 *8*	$(1^-,2^+,3^-,4^+)$	<0.2 keV	P	Jπ: 9626γ to 2^+ and 6281γ to 3^-; π=natural from ^{37}Cl(p,α):res.
11797.9 *8*	$(1^-,2,3,4^+)$	<0.2 keV	P	Jπ: 6203γ and 7232γ to 2^+, 6284γ and 7987γ to 3^-.
11800.1 *8*	$(1,2^+)$	<0.2 keV	P	Jπ: 11798γ to 0^+.
11802.0 *8*		<0.2 keV	P	
11805.9 *8*	3^-	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 5556γ to 2^+, 6722γ to $(2)^-$, 6456γ to 4^+, 7325γ to 4^-.
11810.5 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11812.2 *8*	$(1,2^+)$	<0.2 keV	P	Jπ: 11810γ to 0^+.
11814.9 *8*	(1^-)	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11819.1 *8*			P	Jπ: π=natural ^{37}Cl(p,α):res.
11823.1 *8*	$(3^-,4^+)$	<0.2 keV	P	Jπ: 5573γ to 2^+, 6164γ and 7237γ to 5^-.
11828.7 *8*			P	
11832.0 *8*	3^-	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances; 7266γ, 7895γ and 9663γ to 2^+, 7245γ to 5^-.
11835.0 *8*			P	
11836.6 *8*			P	
11840.0 *3*	2^+	0.302 keV	P R	E(level): weighted average of 11840.3 *8* from (p,γ):resonances and 11840.0 *3* from (n,n),(n,α):resonances. Jπ: from α(θ) in (p,γ):resonances; also from ^{37}Ar(n,n),(n,α):resonances with L(n)=0 from $3/2^+$. Γ from ^{37}Ar(n,n),(n,α): resonances.
11841.0 *3*	2^+	0.267 keV	P R	E(level): weighted average of 11841.3 *8* from (p,γ):resonances and 11841.0 *3* from (n,n),(n,α):resonances. Γ and J from ^{37}Ar(n,n),(n,α):resonances.
11842.2 *8*			P	
11842.5 *8*			P	
11844.1 *8*			P	
11845.8 *8*			P	
11849.7 *8*		<0.2 keV	P	
11851.3 *8*			P	
11851.9 *8*			P	
11855.7 *8*	(1^+)		P S	XREF: S(11855). Jπ: M1 excitation in (e,e′).
11859.4 *4*			R	
11861.2 *8*	$(1^-,2^+)$		P	Jπ: from α(θ) in (p,γ):resonances.
11861.7 *8*			P	

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
11864.7 *8*	$(1^-,3^-)$	<0.2 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11865.5 *8*			P	
11873.8 *8*	$(3,4^+)$	<0.2 keV	P	Jπ: 6716γ and 9705γ to 2^+, 5597γ to 4^+, 7393γ to 4^-.
11875.5 *7*			R	E(level): from (n,n),(n,α):resonances.
11877.7 *8*	$(0 \text{ to } 3)^-$	0.19 keV *12*	P	Jπ: L(p,p)=1 from $3/2^+$.
11880.9 *8*	$(1^-,3^-)$	<0.3 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11882.3 *8*			P	
11887.8 *8*	$(1,2,3)^-$	0.50 keV *13*	P	Jπ: 9719γ, 7950γ, 6730γ and 6293γ to 2^+, 6804γ to $(2)^-$; L(p,p)=1 from $3/2^+$.
11890.2 *10*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11891.5 *8*			P	
11894.7 *8*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11898.0 *8*		<0.3 keV	P	
11901.6 *10*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11902.3 *8*		<0.2 keV	P	
11904.6 *10*			P	
11905.7 *8*	$(3^-,4,5^-)$		P	Jπ: 7028γ and 8095γ to 3^-, 6247γ and 7319γ to 5^-.
11915.4[@] *7*	(10^+)		E	Jπ: 2576.2γ ΔJ=2 Q to 8^+; band member.
11916.3 *8*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
11917.0 *8*		1.73 keV *14*	P	
11918.4 *8*			P	
11922.8 *8*			P	
11928.0 *9*	4^-	<0.3 keV	PQ	Jπ: 5326γ M1(+E2) and 5718γ M1(+E2) to 4^-, 6414γ D(+Q) to 3^-, 7341γ D+Q to 5^-; possible IAS of 1309, 4^- in ^{38}Cl from (^{3}He,d). possible T=2.
11928.4 *8*	$1^-,2^+$	<0.2 keV	P	Jπ: (p,α(θ)).
11935.0 *8*	4^+	<0.2 keV	P	Jπ: (p,α(θ)).
11940.2 *8*		0.51 keV *18*	P	
11943.3 *8*			P	
11945.9 *8*		0.45 keV *16*	P	
11949.0 *8*		<0.07 keV	P	
11957.4 *8*		<0.2 keV	P	
11966.3 *8*		<0.2 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11967.8 *8*			P	
11972.0 *8*			P	
11972.9 *8*	$(1^-,3^-)$	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
11977.8 *8*		<0.2 keV	P	
11982.1 *19*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
11995			P	
11997.5[b] *12*	$(7^- \text{ to } 11^-)$		E	Jπ: 1050γ to (9^-).
11998.7 *19*		<0.6 keV	P	Jπ: π=natural from ^{37}Cl(p,α):res.
12000	(1^+)		S	Jπ: M1 excitation in (e,e′).
12003.6		<1.0 keV	P	
12005.9 *19*	$(1^-,3^-)$	1.0 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12011.9		<1.0 keV	P	
12013.9		<1.0 keV	P	
12017.1 *19*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
12024.1 *19*	2^+	1.2 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12031.2		<1.0 keV	P	
12038.6 *19*	1^-		P	Jπ: from α(θ) in (p,γ):resonances.

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Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
12042.0 *19*	(1⁻,2⁺)	1.5 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12043.2		2.5 keV	P	
12053.5 *19*	2⁺	<0.6 keV	P	Jπ: from α(θ) in (p,γ):resonances.
12060.7		1.6 keV	P	
12063.4 *19*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
12067.4 *19*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
12071.0 *19*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
12076.2			P	
12078.1			P	
12081.5 *19*			P	Jπ: π=natural from ^{37}Cl(p,α):res.
12085.5 *19*	1⁻	2.1 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12094.3			P	
12097.5 *19*	2⁺	3.0 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12106.4			P	
12106.8[&] *20*	(10⁺)		E	Jπ: 3537γ to 8⁺; band member.
12110.6 *19*		2.6 keV *6*	P	Jπ: π=natural from ^{37}Cl(p,α):res.
12117.3 *19*	1⁻	1.1 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12122.6 *19*	(1⁻,3⁻)		P	Jπ: from α(θ) in (p,γ):resonances.
12127.5 *19*	(1⁻,2⁺)	1.4 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12131.8		2.3 keV	P	
12134	(1⁺)		S	Jπ: M1 excitation in (e,e′).
12136.1 *19*	1⁻	2.3 keV *6*	P	Jπ: from α(θ) in (p,γ):resonances.
12143.1 *19*		1.1 keV *6*	P	Jπ: π=natural from ^{37}Cl(p,α):res.
12146.2			P	
12149.7			P	
12153.1 *19*			P	Jπ: π=natural from ^{37}Cl(p,α).
12159			P	
12175.7		3.8 keV	P	
12185.2			P	
12188.8			P	
12199.1			P	
12.2×10³ *1*	(3⁻)		K	Jπ: L(^{7}He,t)=3 from 0⁺.
12206.4			P	
12215.0		4.4 keV	P	
12233.2			P	
12239.5			P	
12250.5			P	
12298.2			P	
12325			P	
12334.0			P	
12343.8			P	
12350.5			P	
12357.3			P	
12364.1			P	
12368.9			P	
12369	(1⁺)		S	Jπ: M1 excitation in (e,e′).
12373.4		2.7 keV	P	
12394	(3⁻,4,5⁻)		P	Jπ: 6880γ and 7516γ to 3⁻, 6735γ and 7807γ to 5⁻.
12405	(3⁻,4,5⁻)		P	Jπ: 6891γ and 6579γ to 3⁻, 7818γ to 5⁻.
12409.3			P	
12416			P	
12420.0			P	
12441.9		3.5 keV	P	
12454			P	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
12459.7			P	
12468.2			P	
12473.9			P	
12484.0			P	
12489.0			P	
12494.9			P	
12498			P	
12503.7			P	
12509.1			P	
12518			P	
12528.6			P	
12540.0			P	
12544.7			P	
12553.3			P	
12561.6			P	
12565.5			P	
12572.2		3.3 keV	P	
12577.7		4.1 keV	P	
12588.3		1.8 keV	P	
12593.0		1.8 keV	P	
12598.0		1.8 keV	P	
12601.4			P	
12611.3		3.1 keV	P	
12620.7		3.3 keV	P	
12631.2		2.4 keV	P	
12637.8		2.1 keV	P	
12642.3		4.3 keV	P	
12656.2		2.4 keV	P	
12665.2		4.3 keV	P	
12669.6		4.3 keV	P	
12672.8		4.3 keV	P	
12681.7		4.3 keV	P	
12699			P	
12.7×10^3 *1*	(3$^-$)		K	Jπ: L(^{7}Li,t)=3 from 0$^+$.
12706			P	
12712			P	
12718		3.3 keV	P	
12727			P	
12741			P	
12746		5.6 keV	P	
12752			P	
12769		7.8 keV	P	
12787			P	
12798		19 keV	P	
12811			P	
12818			P	
12831			P	
12839		3.2 keV	P	
12847			P	
12862			P	
12877			P	
12894			P	
12900		12 keV	P	
12906			P	
12927			P	
12933			P	
12940			P	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{38}Ar Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
12948			P	
12958		12 keV	P	
12976			P	
12994			P	
12999		3.3 keV	P	
13013			P	
13022			P	
13034			P	
13044			P	
13070			X	
13116		39 keV	P	
13178		21 keV	P	
13320			X	
13680			X	
13683.7[a] *6*	(12$^-$)		E	Jπ: 2134.9γ ΔJ=2 Q to (10$^-$), 2068.5 ΔJ=1 d+Q to 11$^-$.
13891	(1$^+$)		S	Jπ: M1 excitation in (e,e′).
13967	(1$^+$)		S	Jπ: M1 excitation in (e,e′).
14066	(1$^+$)		S	Jπ: M1 excitation in (e,e′).
14119.7 *18*	(8$^+$,9,10,11$^+$)		E	Jπ: 4185γ to (9$^+$) and 2821γ to (10$^+$).
14206	(1$^+$)		S	Jπ: M1 excitation in (e,e′).
14.3×10^3 *1*	(3$^-$)		K	Jπ: L(^{7}Li,t)=3 from 0$^+$.
14391.2[&] *10*	(12$^+$)		E	Jπ: 2475.7γ ΔJ=2 Q to (10$^+$); band member.
14877.5[@] *21*	(12$^+$)		E	Jπ: 2962γ to (10$^+$); band member.
14924	(1$^-$)		S	Jπ: E1 excitation in (e,e′).
15.0×10^3 *1*	(4$^+$,5$^-$)		K	Jπ: L(^{3}Li,t)=(4,5) from 0$^+$.
15393.9[c] *21*	(13$^-$)		E	Jπ: 3779γ ΔJ=2 Q to (11)$^-$.
17002.3[&] *14*	(14$^+$)		E	Jπ: 2611γ to (12$^+$); possible band member.
17780.9[a] *21*			E	Jπ: 4097γ to (12$^-$).
18070?[@] *4*	(14$^+$)		E	Jπ: possible 3192γ to (12$^+$); possible band member.
18784 *30*	0$^+$		X	T=3 Jπ: L(p,t)=0 from 0$^+$.
19770	(8$^+$)		J	Jπ: L=8 from α(θ) in ^{34}S(α,α).
19913	(8$^+$)		J	Jπ: L=8 from α(θ) in ^{34}S(α,α).
21662?[@] *5*	(16$^+$)		E	Jπ: possible 3592γ to (14$^+$); possible band member.

[†] From a least-squares fit to γ-ray energies when γ-ray energy uncertainties are assigned, and others are from (p,γ):resonances, unless otherwise noted.
[‡] Additional information 46.
[#] Lifetimes and widths are from (p,γ):resonances, unless otherwise noted. Some lifetime measurements are from (α,pγ) and a few from other γ-ray reactions.
[@] Band(A): 2$^+$ band 1.
[&] Band(B): 2$^+$ band 2.
[a] Band(C): Band based on (6$^-$).
[b] Seq.(D): γ sequence based on 3$^-$.
[c] Seq.(E): γ sequence based on 5$^-$.

Adopted Levels, Gammas (continued)

γ(^{38}Ar)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	$I_{(\gamma+ce)}$	Comments
2167.472	2^+	2167.405 *12*	100	0.0	0^+	E2			B(E2)(W.u.)=3.40 *16* E_γ: weighted average of 2167.400 *9* from ^{38}Cl β^- decay (37.230 m), 2167.5 *3* from ^{38}K ε decay (7.651 m), 2167.5 *5* from (^{28}Si,α2pγ), 2167.53 *5* from (^{14}N,n2pγ), 2167.61 *14* from (p,γ):resonances, and 2167 *1* from (π^-,pnγ). Mult.: from γ(θ,pol) in (p,γ):resonances, (^{14}N,n2pγ), and (^{16}O,αpγ).
3376.9	0^+	1209.4 *3*	100	2167.472	2^+	E2			B(E2)(W.u.)=1.26 *8* E_γ: weighted average of 1209.8 *4* from (^{14}N,n2pγ), 1210 *1* from (α,γ):resonances, and 1209.1 *3* from (p,γ):resonances.
		3376.7		0.0	0^+	E0		0.66 *10*	Mult.,$I_{(\gamma+ce)}$: E0 decay by e^+e^- pair (1975So11) in (αpγ). q^2_K(E0/E2)=0.81 *12*, X(E0/E2)=0.51 *8*, ρ^2(E0)=0.018 *3* (2005Ki02 evaluation).
3810.18	3^-	1642.66 *3*	100.00 *20*	2167.472	2^+	E1(+M2)	+0.016 *13*		B(E1)(W.u.)=0.0024 *+8−5* E_γ: weighted average of 1642.68 *2* from ^{38}Cl β^- decay (37.230 m), 1642.7 *4* from (^{28}Si,α2pγ), 1642.4 *3* from (^{16}O,2pγ), 1642.42 *10* from (^{14}N,n2pγ), 1642.31 *14* from (p,γ):resonances, and 1643 *1* from (π^-,pnγ). I_γ: from ^{38}Cl β^- decay. Mult.: from γ(θ,pol) in (^{16}O,2pγ), (p,γ):resonances and (^{14}N,n2pγ); Mult.=E1 with ΔJ=1 is also supported by γ(θ,pol) in (^{16}O,αpγ), γ(DCO) in (^{28}Si,α2pγ) and γγ(θ) in ^{38}Cl β^- decay. δ: from (^{16}O,2pγ). Other: +0.01 *2* from (p,γ):resonances.
		3810.01 *7*	0.079 *6*	0.0	0^+	[E3]			B(E3)(W.u.)=17 *+8−5* E_γ,I_γ: from ^{38}Cl β^- decay.
3936.5	2^+	559.6[@]	<0.32	3376.9	0^+				
		1770 *1*	7.1 *6*	2167.472	2^+				E_γ: weighted average of 1769 *1* from (^{28}Si,α2pγ) and 1771 *1* from (α,γ):resonances. I_γ: weighted average of 10 *5* from (^{28}Si,α2pγ), 11 *6* from (α,pγ), and 7.0 *6* from (p,γ):resonances.
		3936.1 *5*	100.0 *6*	0.0	0^+	[E2]			B(E2)(W.u.)=1.71 *+24−19* E_γ: weighted average of 3935.6 *5* from ^{38}K ε decay (7.651 m), 3938 *2* from (^{28}Si,α2pγ), 3936.1 *7* from (^{14}N,n2pγ), 3938 *3* from (α,γ):resonances, 3936.1 *5* from (p,γ):resonances, and 3937 *1* from (π^-,pnγ). I_γ: from (p,γ):resonances.
4479.98	4^-	669.78 *8*	100	3810.18	3^-	M1(+E2)	+0.011 *13*		B(M1)(W.u.)=0.076 *+20−16* E_γ: weighted average of 669.6 *2* from (^{28}Si,α2pγ), 669.6 *3* from

$^{38}_{18}Ar_{20}$-25

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
								(^{16}O,2pγ), 669.87 *8* from (^{14}N,n2pγ), 670 *1* from (α,γ):resonances, 669.58 *14* from (p,γ):resonances, and 671 *1* from (π^-,pnγ). Mult.: from γ(θ,pol) in (^{16}O,2pγ), (^{14}N,n2pγ) and (p,γ):resonances, with ΔJ=1; D+Q from γ(DCO) in (^{28}Si,α2pγ) and M1 from γ(θ,pol) in (^{16}O,αpγ). δ: from (^{16}O,2pγ). Other: +0.01 *2* from (p,γ):resonances.
4565.5	2$^+$	629.0	2.0 *3*	3936.5	2$^+$			
		755.3	1.9 *3*	3810.18	3$^-$	[E1]		B(E1)(W.u.)=0.00070 *+20−17*
		1188.6[@]	<0.8	3376.9	0$^+$			
		2398.1 *5*	100.0 *4*	2167.472	2$^+$			E_γ: from (p,γ):resonances.
		4565.2[@]	<2	0.0	0$^+$			
4585.87	5$^-$	105.894 *12*	100.0 *11*	4479.98	4$^-$	M1(+E2)	−0.02 *3*	B(M1)(W.u.)=0.124 *6* E_γ: weighted average of 105.9 *1* from (^{28}Si,α2pγ), 105.894 *12* from (^{16}O,2pγ), 105.92 *10* from (^{14}N,n2pγ), and 105.5 *4* from (p,γ):resonances. Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		775.70 *16*	12.5 *12*	3810.18	3$^-$	E2		B(E2)(W.u.)=0.223 *20* E_γ: weighted average of 775.5 *3* from (^{28}Si,α2pγ), 775.79 *13* from (^{14}N,n2pγ), and 774.9 *5* from (p,γ):resonances. I_γ: weighted average of 13.3 *12* from (^{28}Si,α2pγ), 16.0 *20* from (^{14}N,n2pγ), and 11.0 *10* from (p,γ):resonances. Mult.: from γ(θ,pol) in (^{14}N,n2pγ) and (p,γ):resonances.
		2418.3	0.45 *11*	2167.472	2$^+$	[E3]		B(E3)(W.u.)=0.88 *+28−25*
4709.3	0$^+$	772.8 *9*	100	3936.5	2$^+$	[E2]		B(E2)(W.u.)=1.6×10^2 *+11−9* E_γ: weighted average of 773.3 *5* from (p,γ):resonances and 771 *1* from (π^-,pnγ).
4877.0	3$^-$	940.5[@]	<4	3936.5	2$^+$			
		1066.8 *3*	100.0 *8*	3810.18	3$^-$	M1(+E2)	+0.03 *7*	B(M1)(W.u.)=0.27 *+10−6* E_γ: from (p,γ):resonances. Mult.,δ: from γ(θ,pol) in (p,γ):resonances; D(+Q) from γ(θ) in (α,pγ) with δ=+0.16 *+10−16* or 0.0 *+3−1*.
		1500.1[@]	<2	3376.9	0$^+$			
		2709.4	91.2 *8*	2167.472	2$^+$	E1+M2	+0.10 *7*	B(E1)(W.u.)=0.00040 *+15−10*; B(M2)(W.u.)=2.5 *+73−24* E_γ: from (p,γ):resonances. Mult.,δ: from γ(θ,pol) in (p,γ):resonances; D+Q from γ(θ) in (α,pγ) with δ=−0.30 *+7−14* or −2.7 *3*.
		4876.7[@]	<8	0.0	0$^+$			
5083.6	(2)$^-$	1273.4	7.3 *5*	3810.18	3$^-$			
		2916 *1*	100.0 *5*	2167.472	2$^+$	[E1]		B(E1)(W.u.)=0.00056 *+22−13*
		5083.2[@]	<5	0.0	0$^+$			

$^{38}_{18}Ar_{20}$-26

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
5157.3	2$^+$	677.3[@]	<4	4479.98	4$^-$		
		1220.8	42 *6*	3936.5	2$^+$		
		1347.1	25 *4*	3810.18	3$^-$	[E1]	B(E1)(W.u.)=0.0014 *+11−6* I_γ: other: 39 *7* in (α,pγ).
		2989.7	100 *4*	2167.472	2$^+$		
		5156.9	25 *8*	0.0	0$^+$	[E2]	B(E2)(W.u.)=0.11 *+11−6*
5349.4	4$^+$	784 *1*	2.5 *13*	4565.5	2$^+$	[E2]	B(E2)(W.u.)=27 *+35−18* E_γ,I_γ: from (^{28}Si,α2pγ).
		869.4[@]	<3	4479.98	4$^-$		
		1413.1 *4*	50 *3*	3936.5	2$^+$	[E2]	B(E2)(W.u.)=28 *+16−9* E_γ: from (^{28}Si,α2pγ). I_γ: weighted average of 48 *4* from (^{28}Si,α2pγ), 54 *9* from (α,pγ), and 50.3 *26* from (p,γ):resonances.
		1539 *1*	12.7 *21*	3810.18	3$^-$	[E1]	B(E1)(W.u.)=9×10^{-5} *+7−4* E_γ: from (^{28}Si,α2pγ). I_γ: weighted average of 11.3 *25* from (^{28}Si,α2pγ) and 13.6 *21* from (p,γ):resonances.
		3182.2 *7*	100 *5*	2167.472	2$^+$	E2	B(E2)(W.u.)=1.0 *+5−3* E_γ: weighted average of 3183 *2* from (^{28}Si,α2pγ) and 3182.1 *7* from (^{14}N,n2pγ). Mult.: Q from γ(DCO) in (^{28}Si,α2pγ); M2 ruled out by RUL.
		5349.0[@]	<5	0.0	0$^+$		
5513.3	3$^-$	636.3	38.2 *13*	4877.0	3$^-$		
		947.8	<4	4565.5	2$^+$		
		1033.3 *4*	100 *4*	4479.98	4$^-$		
		1576.8[@]	6	3936.5	2$^+$		
		1703.1	14.3 *17*	3810.18	3$^-$		
		2136.3[@]	<4	3376.9	0$^+$		
		3345.7	54 *4*	2167.472	2$^+$	[E1]	B(E1)(W.u.)=2.0×10^{-5} *+14−7*
		5512.9[@]	<12	0.0	0$^+$		
5552.21	1$^+$,2$^+$	986.7	53 *5*	4565.5	2$^+$		
		1615.7	100 *8*	3936.5	2$^+$		
		1742.0[@]	<8	3810.18	3$^-$		
		3384.6	68 *8*	2167.472	2$^+$		
		5551.8	30 *8*	0.0	0$^+$		
5594.6	2$^+$	1029.1	62 *5*	4565.5	2$^+$		
		1114.6[@]	<8	4479.98	4$^-$		
		1658.1	100 *8*	3936.5	2$^+$		
		1784.4[@]	<18	3810.18	3$^-$		
		2217.6	39 *5*	3376.9	0$^+$	[E2]	B(E2)(W.u.)=3.3 *+26−13*

$^{38}_{18}Ar_{20}$-27

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
5594.6	2^+	5594.2	56 *5*	0.0	0^+	[E2]		B(E2)(W.u.)=0.047 *+34−17*
5658.61	5^-	1072.8 *3*	100.0 *6*	4585.87	5^-	M1(+E2)	−0.10 *9*	B(M1)(W.u.)=0.54 *+12−14* E_γ: weighted average of 1073.2 *4* from (^{28}Si,α2pγ), 1072.5 *4* from (^{16}O,2pγ), 1072.7 *3* from (^{14}N,n2pγ), and 1072.7 *3* from (p,γ):resonances. Mult.,δ: from γ(θ,pol) in (p,γ):resonances with ΔJ=0, also supported by γ(DCO) in (^{28}Si,α2pγ).
		1178.6 *6*	9.4 *4*	4479.98	4^-			E_γ: from (^{28}Si,α2pγ). I_γ: from (p,γ):resonances. Other: 9.7 *14* from (^{28}Si,α2pγ).
		1722.1[@]	<0.6	3936.5	2^+			
		1848.4	2.5 *4*	3810.18	3^-	[E2]		B(E2)(W.u.)=2.6 *+11−8*
		3491.0[@]	<0.6	2167.472	2^+			
5733.9	1^-	5733.4		0.0	0^+	[E1]		B(E1)(W.u.)>0.00079
5824.9	3^-	741.3	25 *3*	5083.6	$(2)^-$			
		947.9	56 *6*	4877.0	3^-			
		1344.9	59 *6*	4479.98	4^-			
		2014.7	100 *10*	3810.18	3^-			
		3657.2	72 *10*	2167.472	2^+	[E1]		B(E1)(W.u.)=1.1×10^{-5} *+23−9*
		5824.4[@]	<25	0.0	0^+			
5857.5	$(2)^-$	980.5	11.0 *11*	4877.0	3^-			
		1292.0[@]	<1.2	4565.5	2^+			
		1920.9[@]	<2.4	3936.5	2^+			
		2047.3	100.0 *21*	3810.18	3^-			
		2480.5[@]	<4	3376.9	0^+			
		3689.8	11.1 *17*	2167.472	2^+	[E1]		B(E1)(W.u.)=6.9×10^{-5} *+39−24*
5974.8	(0^+ to 3^-)	817.5	8.8 *13*	5157.3	2^+			
		1409.3	30 *3*	4565.5	2^+			
		1494.8[@]	<3	4479.98	4^-			
		2038.2	17.3 *22*	3936.5	2^+			
		3807.1	100 *5*	2167.472	2^+			
		5974.3[@]	<5	0.0	0^+			
6041.8	(3^-,4^+)	1164.8[@]	<5	4877.0	3^-			
		1455.9	18 *3*	4585.87	5^-			
		1476.3[@]	<5	4565.5	2^+			
		1561.8	55 *5*	4479.98	4^-			
		2231.5	100 *5*	3810.18	3^-			
		3874.1[@]	<10	2167.472	2^+			
		6041.3[@]	<5	0.0	0^+			

$^{38}_{18}Ar_{20}$-28

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
6053.2	(4$^+$)	703.9 *3*	100 *6*	5349.4	4$^+$			E_γ: from (^{28}Si,α2pγ).
		1488 *1*	32 *4*	4565.5	2$^+$	[E2]		B(E2)(W.u.)=25 *+13−8* E_γ: from (^{28}Si,α2pγ). I_γ: other: 18 *5* from (^{28}Si,α2pγ).
		1573.2	13 *4*	4479.98	4$^-$	[E1]		B(E1)(W.u.)=0.00015 *+11−7*
		2116 *1*	41 *6*	3936.5	2$^+$	[E2]		B(E2)(W.u.)=5.5 *+27−17* E_γ: from (^{28}Si,α2pγ). I_γ: other: 27 *9* from (^{28}Si,α2pγ).
6209.4	4$^-$	1623.5	8.0 *10*	4585.87	5$^-$			
		1729.4 *6*	100.0 *10*	4479.98	4$^-$	M1+E2	−0.32 *10*	B(M1)(W.u.)=0.047 *+24−15*; B(E2)(W.u.)=6 *+8−4* Mult.,δ: D+Q from γ(θ) in (p,γ):resonances; M2 is ruled out by RUL.
		2272.8[@]	<1	3936.5	2$^+$			
		4041.7[@]	<2	2167.472	2$^+$			
		6208.9[@]	<1	0.0	0$^+$			
6213.8	(2$^+$)	1733.8[@]	<4	4479.98	4$^-$			
		2277.2	17 *3*	3936.5	2$^+$			
		4046.1	26 *3*	2167.472	2$^+$			
		6213.3	100 *4*	0.0	0$^+$			
6249.9	2$^+$	900.5	16.9 *26*	5349.4	4$^+$			
		1092.6	10.6 *22*	5157.3	2$^+$			
		1684.4	100 *8*	4565.5	2$^+$			
		2313.3[@]	<10	3936.5	2$^+$			
		2439.6[@]	<6	3810.18	3$^-$			
		2872.9	20 *6*	3376.9	0$^+$			
		4082.2	49 *8*	2167.472	2$^+$			
		6249.3[@]	<6	0.0	0$^+$			
6276.1	4$^+$	926.7	57 *8*	5349.4	4$^+$			
		1796.1	16 *6*	4479.98	4$^-$	[E1]		B(E1)(W.u.)=9×10^{-5} *+17−6*
		2339.5	31 *8*	3936.5	2$^+$	[E2]		B(E2)(W.u.)=1.9 *+28−10*
		2465.8[@]	<10	3810.18	3$^-$			
		2899.1[@]	<6	3376.9	0$^+$			
		4108.4	100 *6*	2167.472	2$^+$	[E2]		B(E2)(W.u.)=0.36 *+42−15*
		6275.5[@]	<8	0.0	0$^+$			
6338.6	1$^-$,2$^-$,3$^-$	1461.6	86 *12*	4877.0	3$^-$			
		2528.3	100 *12*	3810.18	3$^-$			
		2961.6	<17	3376.9	0$^+$			
		4170.9	100 *12*	2167.472	2$^+$	[E1]		B(E1)(W.u.)>0.00018
6353.5	1$^-$	6352.9	100	0.0	0$^+$	[E1]		B(E1)(W.u.)=0.00065 *+41−18*

$^{38}_{18}Ar_{20}$-29

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
6408.32	6^+	749.9 *4*	0.55 *18*	5658.61	5^-	[E1]		B(E1)(W.u.)=8×10^{-6} *+7−4* E_γ,I_γ: from (^{16}O,2pγ).
		1058 *1*	3.3 *4*	5349.4	4^+	[E2]		B(E2)(W.u.)=1.8 *+12−6* E_γ,I_γ: from (^{16}O,2pγ).
		1822.40 *5*	100 *4*	4585.87	5^-	E1(+M2)	+0.007 *10*	B(E1)(W.u.)=0.00010 *+4−2* E_γ: weighted average of 1823.3 *4* from (^{28}Si,α2pγ), 1822.39 *16* from (^{16}O,2pγ), and 1822.39 *3* from (^{14}N,n2pγ). I_γ: from (^{16}O,2pγ). Mult.,δ: from γ(θ,pol) and γ(DCO) in (^{16}O,2pγ) with ΔJ=1, also supported by γ(θ,pol) in (^{14}N,n2pγ) and γ(DCO) in (^{28}Si,α2pγ).
6476.6	(0^+ to 3^-)	1599.6[@]	<3	4877.0	3^-			
		1911.0	100 *3*	4565.5	2^+			
		1996.6[@]	<10	4479.98	4^-			
		2540.0[@]	21 *3*	3936.5	2^+			
		2666.3[@]	<11	3810.18	3^-			
		3099.6[@]	<15	3376.9	0^+			
		4308.9[@]	43 *3*	2167.472	2^+			
		6476.0[@]	<13	0.0	0^+			
6485.4	(1^-,2,3^-)	2548.8[@]	<7	3936.5	2^+			
		2675.1	67 *8*	3810.18	3^-			
		3108.4[@]	<7	3376.9	0^+			
		4317.7	100 *8*	2167.472	2^+			
		6484.8[@]	<10	0.0	0^+			I_γ: other: Iγ(6485)/Iγ(4318)=100 *13*/33 *13* in (α,γ):resonances.
6495.8	(2^-,3^-)	1618.8	43 *7*	4877.0	3^-			
		1930.2[@]	<5	4565.5	2^+			
		2015.8	45 *5*	4479.98	4^-			
		2559.2	31 *5*	3936.5	2^+			
		2685.5	100 *10*	3810.18	3^-			
		3118.8[@]	<5	3376.9	0^+			
		4328.1	19 *5*	2167.472	2^+			
		6495.2[@]	<7	0.0	0^+			
6574.3	1^-	2094.3[@]	<2.5	4479.98	4^-			
		2637.7[@]	<4	3936.5	2^+			
		2764.0[@]	<6	3810.18	3^-			
		3197.3[@]	<4	3376.9	0^+			
		4406.6	27 *4*	2167.472	2^+	[E1]		B(E1)(W.u.)>0.00032

$^{38}_{18}Ar_{20}$-30

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
6574.3	1⁻	6573.7	100 *4*	0.0	0⁺	[E1]		B(E1)(W.u.)>0.00040
6601.59	4⁻	1724.5	21.9 *22*	4877.0	3⁻			
		2015.7	3.0 *5*	4585.87	5⁻			
		2121.55 *21*	100.0 *24*	4479.98	4⁻	M1(+E2)	−0.05 *8*	B(M1)(W.u.)=0.15 *+4−3* Mult.,δ: ΔJ=0 from γ(θ) in (p,γ):resonances and RUL.
		2791.3	1.1 *4*	3810.18	3⁻			
6621.6	(1⁻,2,3⁻)	2056.0	80 *5*	4565.5	2⁺			
		2141.6[@]	<10	4479.98	4⁻			
		2685.0	39 *5*	3936.5	2⁺			
		2811.3	39 *5*	3810.18	3⁻			
		4453.8	100 *8*	2167.472	2⁺			
		6621.0[@]	<23	0.0	0⁺			
6674.4	5⁻	2088.6 *3*	100 *4*	4585.87	5⁻	M1		B(M1)(W.u.)=0.14 *+7−4* E_γ: weighted average of 2088.7 *6* from (^{28}Si,α2pγ) and 2088.6 *3* from (^{16}O,2pγ). Mult.: D with ΔJ=0 from γ(θ) in (p,γ):resonances and γ(DCO) in (^{28}Si,α2pγ); magnetic polarity from no level-parity change determined based on L-transfer data.
		2194.4	21 *4*	4479.98	4⁻			
		2737.8[@]	<5	3936.5	2⁺			
		6673.8[@]	<10	0.0	0⁺			
6681.6	(0,1,2)	947.7	100	5733.9	1⁻			
6772.7	1⁻	2292.6[@]	<10	4479.98	4⁻			
		2836.1	41 *7*	3936.5	2⁺	[E1]		B(E1)(W.u.)>0.0019
		3395.6[@]	<8	3376.9	0⁺			
		4604.9[@]	<10	2167.472	2⁺			
		6772.1	100 *7*	0.0	0⁺	[E1]		B(E1)(W.u.)>0.00038
6824.0	(2⁺,3⁻)	2258.4[@]	<9	4565.5	2⁺			
		2343.9[@]	<3	4479.98	4⁻			
		3013.7	47 *7*	3810.18	3⁻			
		3446.9[@]	<12	3376.9	0⁺			
		4656.2	100 *8*	2167.472	2⁺			
		6823.3[@]	<7	0.0	0⁺			
6824.1	(0⁺ to 4⁺)	2258.5		4565.5	2⁺			
		2887.5		3936.5	2⁺			
		3013.8[@]		3810.18	3⁻			
		4656.3[@]		2167.472	2⁺			
6846	(0⁻ to 4⁻)	1762	100	5083.6	(2)⁻			

$^{38}_{18}Ar_{20}$-31

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
6852	(1,2$^+$)	2286	33 *10*	4565.5	2$^+$			
		3475	100 *13*	3376.9	0$^+$			
		6851	33 *10*	0.0	0$^+$			
6869.9	(2$^-$,3,4$^+$)	x						I_γ: 30% γ branching is unobserved. Additional information 47.
		1992.8	67 *17*	4877.0	3$^-$			
		2304.3[@]	<13	4565.5	2$^+$			
		2933.3[@]	<13	3936.5	2$^+$			
		3059.6	100 *17*	3810.18	3$^-$			
		3492.8[@]	<27	3376.9	0$^+$			
		4702.1	67 *17*	2167.472	2$^+$			
		6869.2[@]	<30	0.0	0$^+$			
6903.8	2$^-$,3$^-$	2423.7	11 *3*	4479.98	4$^-$			
		2967.2	23 *3*	3936.5	2$^+$	[E1]		B(E1)(W.u.)=0.00063 *+48−24*
		4736.0	100 *4*	2167.472	2$^+$	[E1]		B(E1)(W.u.)=0.00068 *+41−20*
6947.9	(2$^+$)	2070.8[@]	<8	4877.0	3$^-$			
		2382.3[@]	<14	4565.5	2$^+$			
		3137.6[@]	<9	3810.18	3$^-$			
		3570.8	100 *5*	3376.9	0$^+$			I_γ: other: 100 *13* from (α,pγ).
		4780.1	54 *5*	2167.472	2$^+$			I_γ: other: 59 *10* from (α,pγ).
		6947.2[@]	<14	0.0	0$^+$			
7046	(3$^-$,4$^+$)	2566	56 *15*	4479.98	4$^-$			
		3236	100 *9*	3810.18	3$^-$			
		4878	19 *4*	2167.472	2$^+$			
7070.19	(6)$^-$	2483.9 *4*	100 *10*	4585.87	5$^-$	M1+E2	+0.53 *+3−9*	B(M1)(W.u.)=0.020 *+10−5*; B(E2)(W.u.)=3.1 *+17−13* E_γ: weighted average of 2483.9 *6* from (^{28}Si,α2pγ) and 2483.9 *4* from (^{16}O,2pγ). I_γ: from (^{28}Si,α2pγ). Mult.: D+Q from γ(DCO) in (^{28}Si,α2pγ) and γ(θ) in (α,pγ); M2 is ruled out by RUL. δ: from (α,pγ). Other: ≈+0.5 from (^{28}Si,α2pγ).
		2590 *1*	11 *2*	4479.98	4$^-$			E_γ,I_γ: from (^{28}Si,α2pγ).
7100.8	(1$^-$ to 4$^+$)	x						I_γ: 30% γ branching is unobserved. Additional information 48.
		4933.0	100	2167.472	2$^+$			
7128	(1$^-$ to 4$^+$)	3318	100 *10*	3810.18	3$^-$			
		4960	41 *8*	2167.472	2$^+$			
7181	(1,2$^+$)	7180	100	0.0	0$^+$			
7192.2	(2$^-$,3,4)	2315.1	27 *3*	4877.0	3$^-$			

$^{38}_{18}Ar_{20}$-32

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
7192.2	(2⁻,3,4)	2626.6[@]	<8	4565.5	2⁺		
		2712.1	100 *7*	4479.98	4⁻		
		3255.6[@]	<5	3936.5	2⁺		
		3381.9	32 *3*	3810.18	3⁻		
		3815.1[@]	<6	3376.9	0⁺		
		5024.4[@]	<6	2167.472	2⁺		
		7191.5[@]	<6	0.0	0⁺		
7233.8	(1⁻ to 4⁺)	5066.0	100	2167.472	2⁺		
7236	(2⁺)	x					I_γ: 50% γ absolute branching is unobserved. Additional information 49.
		7235	100 *10*	0.0	0⁺		
7288.32	6⁺	879.9 *3*	11 *4*	6408.32	6⁺		E_γ: from (^{28}Si,α2pγ). I_γ: unweighted average of 15.4 *13* from (^{28}Si,α2pγ) and 7.0 *10* from (α,pγ).
		1236 *1*	5.1 *13*	6053.2	(4⁺)	[E2]	B(E2)(W.u.)=33 *+53−18* E_γ,I_γ: from (^{28}Si,α2pγ).
		1939.4 *7*	100 *4*	5349.4	4⁺	E2	B(E2)(W.u.)=7×10[1] *+7−3* E_γ: from (^{28}Si,α2pγ). I_γ: from (α,pγ). Other: 100 *8* from (^{28}Si,α2pγ). Mult.: Q from γ(DCO) in (^{28}Si,α2pγ) and γ(θ) in (α,pγ); M2 is ruled out by RUL.
		2704 *1*	31 *3*	4585.87	5⁻	[E1]	B(E1)(W.u.)=0.00024 *+29−10* E_γ: from (^{28}Si,α2pγ). I_γ: weighted average of 33.3 *26* from (^{28}Si,α2pγ) and 27 *4* from (α,pγ).
7289.6	(3⁻,4⁺)	x					I_γ: 37% γ absolute branching is unobserved. Additional information 50.
		3479.2	100 *8*	3810.18	3⁻		
7334	(1⁻ to 4⁺)	3524	100 *17*	3810.18	3⁻		I_γ: from (α,pγ) only.
		5166	67 *17*	2167.472	2⁺		I_γ: from (α,pγ) only.
7350	(3⁻,4⁺)	1100	46 *10*	6249.9	2⁺		E_γ,I_γ: from (α,pγ) only.
		2764	98 *10*	4585.87	5⁻		E_γ,I_γ: from (α,pγ) only.
		2870	100 *10*	4479.98	4⁻		E_γ,I_γ: from (α,pγ) only.
7370	(1⁺)	x					I_γ: 50% γ absolute branching is unobserved. Additional information 51.
		7369	100 *20*	0.0	0⁺		
7376	(2⁺,3,4⁺)	1126	45 *10*	6249.9	2⁺		E_γ,I_γ: from (α,pγ).
		2027	100 *2*	5349.4	4⁺		E_γ,I_γ: from (α,pγ).
7431.0	(2⁻,3,4⁺)	x					I_γ: 45% γ absolute branching is unobserved. Additional information 52.
		5263.1	100 *9*	2167.472	2⁺		
7452	(1⁻ to 4⁺)	x					I_γ: 25% γ absolute branching is unobserved. Additional information 53.

$^{38}_{18}Ar_{20}$-33

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	Comments
7452	(1$^-$ to 4$^+$)	2575	36 *9*	4877.0	3$^-$		
		5284	100 *9*	2167.472	2$^+$		
7485	(3$^-$,4$^+$)	1826	100	5658.61	5$^-$		
7491.3	(6$^+$)	1438 *1*	100 *8*	6053.2	(4$^+$)		E_γ,I_γ: from (^{28}Si,α2pγ).
		1833 *1*	33 *8*	5658.61	5$^-$		E_γ,I_γ: from (^{28}Si,α2pγ).
		2142 *1*	46 *8*	5349.4	4$^+$		E_γ,I_γ: from (^{28}Si,α2pγ).
7497	(3,4,5$^-$)	x					I_γ: 20% γ absolute branching is unobserved in (α,pγ). Additional information 54.
		1444	100 *10*	6053.2	(4$^+$)		I_γ: from (α,pγ).
		3017	58 *10*	4479.98	4$^-$		I_γ: from (α,pγ).
		3687 *3*	22 *6*	3810.18	3$^-$		E_γ: from (α,γ):resonances. I_γ: from (α,pγ).
7508.12	7$^-$	437.8 *2*	8.8 *11*	7070.19	(6)$^-$	(M1+E2)	E_γ,I_γ: from (^{28}Si,α2pγ) only. Mult.: D+Q with ΔJ=1 in (^{28}Si,α2pγ) based on DCO=0.82 *15*, which however is also consistent with ΔJ=2 or ΔJ=0; ΔJ<2 is also favored by RUL. Note that in (α,pγ), J^π=5$^-$ is assigned to the daughter level at 7070 based on RUL and $\gamma(\theta)$. See comments for 7070 level.
		1100 *1*	2.2 *11*	6408.32	6$^+$		E_γ,I_γ: from (^{28}Si,α2pγ) only.
		1850 *1*	8 *3*	5658.61	5$^-$	[E2]	B(E2)(W.u.)<7.9 E_γ,I_γ: from (^{28}Si,α2pγ). Other: Iγ=3 *2* in (α,pγ), <4 in (^{16}O,2pγ).
		2922.6 *6*	100 *6*	4585.87	5$^-$	E2	B(E2)(W.u.)<7.4 E_γ: unweighted average of 2923 *1* from (^{28}Si,α2pγ), 2923.2 *4* from (^{16}O,2pγ), and 2921.5 *3* from (^{14}N,n2pγ). I_γ: from (^{28}Si,α2pγ). Mult.: from $\gamma(\theta$,pol) in (^{16}O,2pγ), also supported by γ(DCO) in (^{28}Si,α2pγ) and $\gamma(\theta)$ in (^{14}N,n2pγ) and (α,pγ).
7528	(3$^-$ to 7$^-$)	1869	5 *3*	5658.61	5$^-$		E_γ,I_γ: from (α,pγ).
		2942	100 *3*	4585.87	5$^-$		E_γ,I_γ: from (α,pγ).
7539	(3,4,5)	1486		6053.2	(4$^+$)		
		3059		4479.98	4$^-$		
7628?	(1,2$^+$)	7628 *8*		0.0	0$^+$		E_γ: from (α,γ):resonances.
7648?	(1,2$^+$)	7648 *8*		0.0	0$^+$		
7663	(2$^+$ to 6$^+$)	2314	100	5349.4	4$^+$		
7667	(3$^-$ to 7$^-$)	993	52 *9*	6674.4	5$^-$		E_γ,I_γ: from (α,pγ).
		2008	100 *14*	5658.61	5$^-$		E_γ,I_γ: from (α,pγ).
7683	(3$^-$,4$^+$)	3203	100 *11*	4479.98	4$^-$		I_γ: from (α,pγ). Other: 100 *17* from (p,γ):resonances.
		3873	49 *11*	3810.18	3$^-$		I_γ: from (α,pγ). Other: <10 from (p,γ):resonances.
		5515	65 *9*	2167.472	2$^+$		I_γ: weighted average of 64 *9* from (α,pγ) and 67 *17* from (p,γ):resonances.
7702	(1$^+$)	5534	100 *14*	2167.472	2$^+$		E_γ,I_γ: from (α,pγ).
		7701	43 *14*	0.0	0$^+$		E_γ,I_γ: from (α,pγ).

$^{38}_{18}Ar_{20}$-34

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
7786	(2$^-$ to 6$^-$)	1744	100 *11*	6041.8	(3$^-$,4$^+$)			E_γ,I_γ: from (α,pγ).
		3306	85 *11*	4479.98	4$^-$			E_γ,I_γ: from (α,pγ).
7828	(1$^-$ to 5$^-$)	4018	100	3810.18	3$^-$			E_γ,I_γ: from (α,pγ).
7857	(1$^-$,2$^+$)	4047	100 *25*	3810.18	3$^-$			E_γ,I_γ: from (α,pγ).
		5689	75 *25*	2167.472	2$^+$			E_γ,I_γ: from (α,pγ).
		7856	75 *25*	0.0	0$^+$			E_γ,I_γ: from (α,pγ).
7858.9	(6)	1184.5 *4*	100	6674.4	5$^-$	D		E_γ,Mult.: from (^{28}Si,α2pγ), Mult=D from γ(DCO).
7893.4	(1$^+$,2$^+$)	7892.5	100	0.0	0$^+$			
7899	(3$^-$ to 7$^-$)	1225	100	6674.4	5$^-$			
7911	(3$^-$,4$^+$)	2252	81 *8*	5658.61	5$^-$			E_γ,I_γ: from (α,pγ).
		2562	58 *8*	5349.4	4$^+$			E_γ,I_γ: from (α,pγ).
		3325	42 *8*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
		3431	100 *12*	4479.98	4$^-$			E_γ,I_γ: from (α,pγ).
		4101	85 *12*	3810.18	3$^-$			E_γ,I_γ: from (α,pγ).
		5743	19 *8*	2167.472	2$^+$			E_γ,I_γ: from (α,pγ).
7992	(1$^-$,2,3$^-$)	5824	100	2167.472	2$^+$			E_γ: other: 5827 *3* from (α,γ):resonances.
8068	(3$^-$,4$^+$)	2026	100 *20*	6041.8	(3$^-$,4$^+$)			E_γ,I_γ: from (α,pγ).
		4258	67 *15*	3810.18	3$^-$			E_γ,I_γ: from (α,pγ).
8077.20	7$^+$	789.3 *6*	7.5 *15*	7288.32	6$^+$			E_γ,I_γ: from (^{28}Si,α2pγ). Other: Iγ=7 in (α,pγ).
		1669.0 *3*	100 *3*	6408.32	6$^+$	M1+E2	+0.72 *+21−16*	B(M1)(W.u.)=0.026 *+16−10*; B(E2)(W.u.)=17 *+15−8* E_γ: weighted average of 1669.4 *4* from (^{28}Si,α2pγ), 1669.2 *3* from (^{16}O,2pγ), and 1668.3 *4* from (^{14}N,n2pγ). I_γ: from (^{28}Si,α2pγ). Mult.: D+Q with ΔJ=1 from γ(DCO) in (^{28}Si,α2pγ) and γ(θ) in (α,pγ); M2 ruled out by RUL. δ: from γ(θ) in (α,pγ).
8106	(0$^+$ to 4$^+$)	5938	100	2167.472	2$^+$			
8124	(3$^-$ to 6$^+$)	1450	37 *5*	6674.4	5$^-$			E_γ,I_γ: from (α,pγ).
		2774	24 *5*	5349.4	4$^+$			E_γ,I_γ: from (α,pγ) only.
		3538	100 *6*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
8125.0	(6$^-$)	1055 *1*	64 *14*	7070.19	(6)$^-$	(M1+E2)	+0.9 *+7−2*	E_γ,I_γ: from (^{28}Si,α2pγ) considered for a doublet; also reported in (α,pγ). Mult.,δ: D+Q from γ(θ) in (α,pγ). Other: Mult=D from γ(DCO) in (^{28}Si,α2pγ), giving possible ΔJ=0.
		1451 *1*	29 *7*	6674.4	5$^-$			E_γ,I_γ: from (^{28}Si,α2pγ), not reported in (α,pγ); a similar γ is placed from 8124 level in the latter.
		3538 *2*	100 *14*	4585.87	5$^-$			E_γ,I_γ: from (^{28}Si,α2pγ), not reported in (α,pγ); a similar γ is placed from 8124 level in the latter.
8181	(3$^-$,4$^+$)	6013	100	2167.472	2$^+$			
8215	(3$^-$ to 7$^-$)	1541	35 *7*	6674.4	5$^-$			E_γ: from (α,pγ).
		2556	100 *8*	5658.61	5$^-$			E_γ: from (α,pγ).

$^{38}_{18}Ar_{20}$-35

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
8233	(1$^-$)	8232	100	0.0	0$^+$			
8261	(3$^-$ to 6$^-$)	2602	89 *6*	5658.61	5$^-$			E_γ,I_γ: from (α,pγ).
		3675	100 *6*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
		3781	33 *4*	4479.98	4$^-$			E_γ,I_γ: from (α,pγ).
8311	(1$^+$)	4501	100 *25*	3810.18	3$^-$			
		6143	89 *25*	2167.472	2$^+$			
8353	(1,2$^+$)	3787	80 *22*	4565.5	2$^+$			E_γ,I_γ: from (α,pγ).
		6185	100 *4*	2167.472	2$^+$			E_γ,I_γ: from (α,pγ).
		8352	42 *20*	0.0	0$^+$			E_γ,I_γ: from (α,pγ).
8391	(2$^+$)	8390	100	0.0	0$^+$			
8417	(3$^-$ to 7$^-$)	2758	100	5658.61	5$^-$			
8481	(3$^-$ to 6$^-$)	3895	100 *10*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
		4001	100 *10*	4479.98	4$^-$			E_γ,I_γ: from (α,pγ).
8491.1	(6$^-$)	1420.9 *3*	100	7070.19	(6)$^-$	D+Q		E_γ: weighted average of 1421.0 *4* from (^{28}Si,α2pγ) and 1420.8 *3* from (^{16}O,2pγ). Mult.,δ: δ(Q/D)=+1.1 *+5−4* from γ(θ) data in (α,pγ) if 1420.9γ is a ΔJ=0 transition. γ(θ) data giving positive A_2 and negative A_4 is consistent with ΔJ=0 or 2; γ(DCO) in (^{28}Si,α2pγ) is consistent ΔJ=1, but for large D+Q admixture, it can also be consistent with ΔJ=0.
8517	(1,2$^+$)	6349	100 *19*	2167.472	2$^+$			E_γ,I_γ: from (α,pγ).
		8516	11 *9*	0.0	0$^+$			E_γ,I_γ: from (α,pγ).
8520	(3$^-$ to 6$^-$)	3934	61 *6*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
		4040	100 *13*	4479.98	4$^-$			E_γ,I_γ: from (α,pγ).
8569.59	8$^+$	492.55 *25*	13.1 *9*	8077.20	7$^+$	M1(+E2)	>−0.09	E_γ: weighted average of 492.6 *2* from (^{28}Si,α2pγ), 492.7 *2* from (^{16}O,2pγ), and 492.25 *25* from (^{14}N,n2pγ). I_γ: weighted average of 12.7 *7* from (^{28}Si,α2pγ), 21 *4* from (^{16}O,2pγ), 14 *4* from (^{14}N,n2pγ), and 18 *4* from (α,pγ). Mult.,δ: from γ(θ,pol) in (^{16}O,2pγ), also supported by γ(DCO) in (^{28}Si,α2pγ).
		1061.4 *2*	23.7 *13*	7508.12	7$^-$	(E1)		E_γ: weighted average of 1061.4 *3* from (^{28}Si,α2pγ), 1061.5 *2* from (^{16}O,2pγ), and 1061.2 *3* from (^{14}N,n2pγ). I_γ: weighted average of 24.3 *7* from (^{28}Si,α2pγ), 21 *6* from (^{16}O,2pγ), 14 *4* from (^{14}N,n2pγ), and 18 *3* from (α,pγ). Mult.: D from γ(DCO) in (^{28}Si,α2pγ) for a doublet structure; polarity from level scheme.
		1282 *1*	1.0 *3*	7288.32	6$^+$			E_γ,I_γ: from (^{28}Si,α2pγ) only.
		2161.0 *3*	100 *4*	6408.32	6$^+$	E2		E_γ: weighted average of 2162 *1* from (^{28}Si,α2pγ), 2160.6 *2* from (^{16}O,2pγ), and 2161.30 *20* from (^{14}N,n2pγ).

$^{38}_{18}Ar_{20}$-36

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
								E_γ: weighted average of 2162 *1* from (^{28}Si,α2pγ), 2160.6 *2* from (^{16}O,2pγ), and 2161.30 *20* from (^{14}N,n2pγ). I_γ: from (^{14}N,n2pγ). Mult.: from γ(θ,pol) in (^{16}O,2pγ), γ(DCO) in (^{28}Si,α2pγ) and γ(θ) in (^{14}N,n2pγ).
8595	(3$^-$ to 7$^-$)	2936	100 *20*	5658.61	5$^-$			E_γ,I_γ: from (α,pγ).
		4009	100 *20*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
8650	(3$^-$ to 6$^+$)	2597	25 *6*	6053.2	(4$^+$)			E_γ,I_γ: from (α,pγ).
		2991	100 *11*	5658.61	5$^-$			E_γ,I_γ: from (α,pγ).
8668	2$^+$	3791	100 *30*	4877.0	3$^-$			E_γ,I_γ: from (α,pγ).
		6500	100 *30*	2167.472	2$^+$			E_γ,I_γ: from (α,pγ).
8783	(3$^-$ to 7$^-$)	3124	100	5658.61	5$^-$			
8789	(4$^-$ to 7$^-$)	1719	100 *15*	7070.19	(6)$^-$			E_γ,I_γ: from (α,pγ).
		2115	54 *15*	6674.4	5$^-$			E_γ,I_γ: from (α,pγ).
8800	(2$^-$ to 6$^-$)	2758	100	6041.8	(3$^-$,4$^+$)			
8809	(4$^+$ to 8$^+$)	2401	100	6408.32	6$^+$			
8828	(3$^-$ to 7$^-$)	4242	100	4585.87	5$^-$			
8875	(3$^-$ to 6$^-$)	3216	50 *10*	5658.61	5$^-$			E_γ,I_γ: from (α,pγ).
		4289	50 *10*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
		4395	100 *20*	4479.98	4$^-$			E_γ,I_γ: from (α,pγ).
8944	(4$^+$ to 7$^-$)	2536	35 *7*	6408.32	6$^+$			E_γ,I_γ: from (α,pγ).
		3285	100 *9*	5658.61	5$^-$			E_γ,I_γ: from (α,pγ).
8956	(4$^-$ to 7$^-$)	1886	72 *10*	7070.19	(6)$^-$			E_γ,I_γ: from (α,pγ).
		4370	100 *10*	4585.87	5$^-$			E_γ,I_γ: from (α,pγ).
8972.85	7$^-$	847.8 *4*	3.3 *8*	8125.0	(6$^-$)			E_γ,I_γ: from (^{28}Si,α2pγ) only.
		1903 *1*	3.3 *8*	7070.19	(6)$^-$			E_γ,I_γ: from (^{28}Si,α2pγ) only.
		2300 *1*	9.2 *17*	6674.4	5$^-$	(E2)		E_γ,I_γ: from (^{28}Si,α2pγ) only. Mult.: Q from γ(DCO) in (^{28}Si,α2pγ) for a doublet structure; polarity from level scheme.
		2564.4 *4*	100 *8*	6408.32	6$^+$	E1+M2	−0.04 *2*	E_γ: weighted average of 2565 *1* from (^{28}Si,α2pγ), 2564.5 *4* from (^{16}O,2pγ), and 2564.0 *5* from (^{14}N,n2pγ). I_γ: from (^{16}O,2pγ) and (^{28}Si,α2pγ). Mult.,δ: from γ(θ,pol) in (^{16}O,2pγ), also supported by γ(DCO) in (^{28}Si,α2pγ) and γ(θ) in (^{14}N,n2pγ).
		3313.4 *7*	20.3 *13*	5658.61	5$^-$	(E2)		E_γ: weighted average of 3314 *1* from (^{28}Si,α2pγ) and 3313.1 *7* from (^{14}N,n2pγ). I_γ: weighted average of 20.8 *8* from (^{28}Si,α2pγ), 13 *3* from (^{16}O,2pγ), 29 *9* from (^{14}N,n2pγ), and 15 *6* from (α,pγ). Mult.: Q from γ(DCO) in (^{28}Si,α2pγ); polarity from level scheme.
		4386.2 *4*	36 *3*	4585.87	5$^-$	E2		E_γ: weighted average of 4388 *2* from (^{28}Si,α2pγ), 4386.2 *4* from

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
							(^{16}O,2pγ), and 4386.1 *5* from (^{14}N,n2pγ). I_γ: weighted average of 34.2 *17* from (^{28}Si,α2pγ), 51 *8* from (^{16}O,2pγ), and 47 *6* from (α,pγ). Other: 93 *18* from (^{14}N,n2pγ). Mult.: from γ(θ,pol) in (^{16}O,2pγ) and γ(DCO) in (^{28}Si,α2pγ).
8998	(4$^+$,5,6$^-$)	2590		6408.32	6$^+$		
9072	(4$^-$,5,6$^+$)	1722	65 *12*	7350	(3$^-$,4$^+$)		E_γ,I_γ: from (α,pγ).
		2002	100 *14*	7070.19	(6)$^-$		E_γ,I_γ: from (α,pγ).
		2398	67 *12*	6674.4	5$^-$		E_γ,I_γ: from (α,pγ).
9077	(1$^-$ to 5$^-$)	4200	100	4877.0	3$^-$		
9087	(3$^-$ to 7$^-$)	3428	100 *15*	5658.61	5$^-$		E_γ,I_γ: from (α,pγ).
		4501	37 *5*	4585.87	5$^-$		E_γ,I_γ: from (α,pγ).
9100	(1,2$^+$)	9099	100	0.0	0$^+$		
9158	(0$^+$ to 4$^+$)	6990	100	2167.472	2$^+$		
9170	(3$^-$ to 6$^-$)	4584	100 *12*	4585.87	5$^-$		E_γ,I_γ: from (α,pγ).
		4690	100 *12*	4479.98	4$^-$		E_γ,I_γ: from (α,pγ).
9199	(4$^-$ to 8$^-$)	1074	100	8125.0	(6$^-$)		
9204	(0$^+$ to 4$^+$)	7036	100	2167.472	2$^+$		
9260	(0$^+$ to 4$^+$)	7092	100	2167.472	2$^+$		
9293	(3$^-$ to 7$^-$)	4707	100	4585.87	5$^-$		
9300	(0$^+$ to 4$^+$)	7132	100	2167.472	2$^+$		
9330	(4$^+$ to 8$^+$)	2922	100	6408.32	6$^+$		
9339.2	8$^+$	1848 *1*	16.5 *25*	7491.3	(6$^+$)	[E2]	B(E2)(W.u.)=5.6 *+33−20* E_γ,I_γ: from (^{28}Si,α2pγ).
		2051.3 *6*	100 *8*	7288.32	6$^+$	E2	B(E2)(W.u.)=20 *+8−5* E_γ,I_γ: from (^{28}Si,α2pγ). Mult.: Q from γ(DCO) in (^{28}Si,α2pγ), M2 ruled out by RUL.
		2931 *1*	24.1 *25*	6408.32	6$^+$	[E2]	B(E2)(W.u.)=0.8 *+5−3* E_γ,I_γ: from (^{28}Si,α2pγ).
9349.6	(7$^-$)	2941 *2*	80 *20*	6408.32	6$^+$		E_γ,I_γ: from (^{28}Si,α2pγ).
		3691 *2*	60 *20*	5658.61	5$^-$		E_γ,I_γ: from (^{28}Si,α2pγ). Other: Iγ=222 *38* in (α,pγ).
		4764 *3*	100 *20*	4585.87	5$^-$		E_γ,I_γ: from (^{28}Si,α2pγ). Other: Iγ=100 *29* in (α,pγ).
9374	(3$^-$ to 7$^-$)	4788	100	4585.87	5$^-$		
9437	(3$^-$ to 7$^-$)	3778	100	5658.61	5$^-$		
9460	(3$^-$ to 7$^-$)	4874	100	4585.87	5$^-$		
9537.0	8$^{(+)}$	967.4 *3*	79 *7*	8569.59	8$^+$	D	E_γ,I_γ: from (^{28}Si,α2pγ). Other: Iγ=118 *20* in (α,pγ). Mult.: ΔJ=0 from γ(DCO) in (^{28}Si,α2pγ).
		2046 *1*	57 *14*	7491.3	(6$^+$)		E_γ,I_γ: from (^{28}Si,α2pγ).
		2248 *1*	57 *22*	7288.32	6$^+$		E_γ,I_γ: from (^{28}Si,α2pγ).
		3128 *2*	100 *14*	6408.32	6$^+$		E_γ,I_γ: from (^{28}Si,α2pγ). Other: Iγ=100 *26* in (α,pγ).
9597	1$^-$	9596	100	0.0	0$^+$	E1	Mult.: D from γ(θ) in (α,γ):resonances, electric polarity from E1 excitation in (e,e′).

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
9644	(5$^-$ to 9$^-$)	2136	100	7508.12	7$^-$			
9647	(2$^-$ to 6$^-$)	3045	100	6601.59	4$^-$			
9655	(3$^-$ to 7$^-$)	3996	100	5658.61	5$^-$			
9669	(3$^-$ to 7$^-$)	4010	100	5658.61	5$^-$			
9689	1$^-$	x						I_γ: 20% γ absolute branching is unobserved in (α,γ):resonances. Additional information 55.
		5752	26 *5*	3936.5	2$^+$	(E1(+M2))	+0.07 *+9−12*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances, polarity from level-parity change determined based on the fact that only natural-parity resonant states can be populated.
		6312	63 *11*	3376.9	0$^+$			E_γ,I_γ: from (α,γ):resonances.
		7521	18 *5*	2167.472	2$^+$			E_γ,I_γ: from (α,γ):resonances.
		9688	100 *13*	0.0	0$^+$	(E1)		E_γ,I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances, electric polarity determined based on the fact that only natural-parity resonant states can be populated.
9797	3$^-$	x						I_γ: 35% γ absolute branching is unobserved in (α,γ):resonances. Additional information 56.
		5231	26 *8*	4565.5	2$^+$			E_γ,I_γ: from (α,γ):resonances.
		5860	100 *10*	3936.5	2$^+$	(E1)		E_γ,I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
		5986	18 *8*	3810.18	3$^-$			E_γ,I_γ: from (α,γ):resonances.
		7629	23 *8*	2167.472	2$^+$			E_γ,I_γ: from (α,γ):resonances.
9811	1$^-$	6434	9.1 *13*	3376.9	0$^+$			E_γ,I_γ: from (α,γ):resonances.
		7643	4.6 *23*	2167.472	2$^+$			E_γ,I_γ: from (α,γ):resonances.
		9810	100 *10*	0.0	0$^+$	(E1)		E_γ,I_γ: from (α,γ):resonances. Mult.: from γ(θ) in (α,γ):resonances.
9829	(4$^-$ to 8$^-$)	2759	100	7070.19	(6)$^-$			
9894	2$^+$	x						I_γ: 12% γ absolute branching is unobserved in (α,γ):resonances. Additional information 57.
		4160	40 *8*	5733.9	1$^-$			E_γ,I_γ: from (α,γ):resonances.
		4342	20 *4*	5552.21	1$^+$,2$^+$			E_γ,I_γ: from (α,γ):resonances.
		5328	48 *8*	4565.5	2$^+$	(M1+E2)	+0.18 *13*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
		5957	28 *4*	3936.5	2$^+$	(M1+E2)	+0.84 *+27−21*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
		6083	72 *8*	3810.18	3$^-$	(E1+M2)	−0.11 *7*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
		7726	100 *8*	2167.472	2$^+$	(M1+E2)	−0.27 *6*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
		9893	44 *8*	0.0	0$^+$	(E2)		E_γ,I_γ: from (α,γ):resonances. Mult.: Q from γ(θ) in (α,γ):resonances.

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
9917	1⁻	5351		4565.5	2⁺			
		5980		3936.5	2⁺			
		6106		3810.18	3⁻			
		7749		2167.472	2⁺			
		9916	100	0.0	0⁺	(E1)		Mult.: D from γ(θ) in (α,γ):resonances.
9934.0	(9⁺)	1364 *1*	100	8569.59	8⁺	D+Q		E_γ: from (^{28}Si,α2pγ). Mult.: ΔJ=1 from γ(DCO) in (^{28}Si,α2pγ) for a doublet structure.
9951	2⁺	x						I_γ: 14% γ absolute branching is unobserved in (α,γ):resonances. Additional information 58.
		6014	57 *8*	3936.5	2⁺	(M1+E2)	+1.4 *+4−3*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
		6140	70 *8*	3810.18	3⁻	(E1(+M2))	+0.07 *+9−12*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances.
		7783	100 *8*	2167.472	2⁺	(M1+E2)	+1.19 *+30−8*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
9996	1⁻	9995	100	0.0	0⁺	(E1)		Mult.: D from γ(θ) in (α,γ):resonances.
10024.9	(8⁻)	1900 *1*	100 *13*	8125.0	(6⁻)	Q		E_γ,I_γ: from (^{28}Si,α2pγ).
		1948 *1*	38 *8*	8077.20	7⁺			E_γ,I_γ: from (^{28}Si,α2pγ).
		2517 *1*	46 *8*	7508.12	7⁻			E_γ,I_γ: from (^{28}Si,α2pγ).
		2956 *2*	54 *8*	7070.19	(6)⁻			E_γ,I_γ: from (^{28}Si,α2pγ).
10034	1⁻	10033	100	0.0	0⁺	(E1)		Mult.: D from γ(θ) in (α,γ):resonances.
10047	(1⁻)	x						I_γ: 47% γ absolute branching is unobserved in (α,γ):resonances. Additional information 59.
		5481	100	4565.5	2⁺			E_γ,I_γ: from (α,γ):resonances.
		6110	54	3936.5	2⁺			E_γ,I_γ: from (α,γ):resonances.
		7879	36	2167.472	2⁺			E_γ,I_γ: from (α,γ):resonances.
10067	3⁻	x						I_γ: 45% γ absolute branching is unobserved in (α,γ):resonances. Additional information 60.
		3853	42 *5*	6213.8	(2⁺)	D(+Q)	+0.05 *8*	E_γ,I_γ: from (α,γ):resonances. Mult.: from γ(θ) in (α,γ):resonances.
		4983[@]	<16	5083.6	(2)⁻			E_γ,I_γ: from (α,γ):resonances.
		5501	74 *5*	4565.5	2⁺	(E1+M2)	−0.09 *4*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
		5587	42 *5*	4479.98	4⁻	(M1+E2)		E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances, δ=−0.27 *+10−20* or −2.9 *+9−8*.
		6130	16 *5*	3936.5	2⁺	(E1+M2)		E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances, δ=−0.02 *4* or −2.9 *+5−11*.
		7899	100 *10*	2167.472	2⁺			E_γ,I_γ: from (α,γ):resonances.
10101	(3⁻ to 7⁻)	4442	100 *12*	5658.61	5⁻			E_γ,I_γ: from (α,pγ).
		5515	69 *12*	4585.87	5⁻			E_γ,I_γ: from (α,pγ).

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
10112	(4$^+$ to 8$^+$)	3703	100	6408.32	6$^+$			
10120	(6,7,8)	2043	100 *5*	8077.20	7$^+$			E_γ,I_γ: from (α,pγ).
		2612	28 *5*	7508.12	7$^-$			E_γ,I_γ: from (α,pγ).
10135	(5$^-$ to 9$^-$)	2627	100	7508.12	7$^-$			
10146	2$^+$	x						I_γ: 27% γ absolute branching is unobserved in (α,γ):resonances. Additional information 61.
		7978	100 *6*	2167.472	2$^+$	(M1(+E2))	−0.05 *4*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances.
		10145	7 *3*	0.0	0$^+$	(E2)		E_γ,I_γ: from (α,γ):resonances. Mult.: Q from γ(θ) in (α,γ):resonances.
10170	3$^-$	x						I_γ: 27% γ absolute branching is unobserved in (α,γ):resonances. Additional information 62.
		5604	19 *3*	4565.5	2$^+$	(E1(+M2))	−0.04 *+8−5*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances.
		5690	49 *5*	4479.98	4$^-$	(M1+E2)		E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances, δ=−0.14 *5* or −4.3 *+6−8*.
		6233	30 *5*	3936.5	2$^+$	(E1)		E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D from γ(θ) in (α,γ):resonances.
		8002	100 *8*	2167.472	2$^+$	(E1(+M2))	+0.05 *4*	E_γ,I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances.
10174.29	9$^-$	835.3 *4*	3.7 *11*	9339.2	8$^+$	[E1]		B(E1)(W.u.)=7×10^{-6} *+5−3* E_γ,I_γ: from (^{28}Si,α2pγ) only.
		1201.32 *20*	88 *6*	8972.85	7$^-$	E2		B(E2)(W.u.)=4.9 *+15−10* E_γ: weighted average of 1201.8 *3* from (^{28}Si,α2pγ), 1201.17 *21* from (^{16}O,2pγ), and 1201.24 *20* from (^{14}N,n2pγ). I_γ: weighted average of 74 *5* from (^{28}Si,α2pγ), 93 *4* from (^{16}O,2pγ), 92 *8* from (^{14}N,n2pγ), and 100 *10* from (α,pγ). Mult.: from γ(θ,pol) in (^{16}O,2pγ) and γ(DCO) in (^{28}Si,α2pγ).
		1604.67 *16*	100 *4*	8569.59	8$^+$	E1+M2	−0.04 *2*	B(E1)(W.u.)=2.7×10^{-5} *+8−6*; B(M2)(W.u.)=0.08 *+15−6* E_γ: weighted average of 1605.4 *4* from (^{28}Si,α2pγ), 1604.68 *11* from (^{16}O,2pγ), and 1604.32 *25* from (^{14}N,n2pγ). I_γ: from (^{16}O,2pγ). Mult.,δ: from γ(θ,pol) in (^{16}O,2pγ), ΔJ=1 from γ(DCO) in (^{28}Si,α2pγ).
10181	(5$^-$ to 9$^-$)	2673	100	7508.12	7$^-$			
10184	1$^-$	8016		2167.472	2$^+$			E_γ: 8027 *8* from (α,γ):resonances.
		10183	100	0.0	0$^+$	(E1)		B(E1)(W.u.)=3.0×10^{-5} *+33−10* Mult.: D from γ(θ) in (α,γ):resonances.
10217	(0$^+$ to 4$^+$)	x						I_γ: 35% γ absolute branching is unobserved in (α,γ):resonances. Additional information 63.

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
10217	(0^+ to 4^+)	5651	100	4565.5	2^+		I_γ: from (α,γ):resonances.
		8049	89	2167.472	2^+		I_γ: from (α,γ):resonances.
10245	(5^- to 8^-)	1754	100 *8*	8491.1	(6^-)		I_γ: from (α,pγ).
		2737	59 *8*	7508.12	7^-		I_γ: from (α,pγ).
10245	(0^+ to 4^+)	6308		3936.5	2^+		
		8077		2167.472	2^+		
10255	1^-	x					I_γ: 10% γ absolute branching is unobserved in (α,γ):resonances. Additional information 64.
		6877	23 *3*	3376.9	0^+		I_γ: from (α,γ):resonances.
		8087	13.6 *15*	2167.472	2^+		I_γ: from (α,γ):resonances.
		10254	100 *6*	0.0	0^+	(E1)	I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
10274	(4^+ to 8^+)	2986	100	7288.32	6^+		
10316	(3^- to 7^-)	5730	100	4585.87	5^-		
10335	1^-	x					I_γ: 23% γ absolute branching is unobserved. Additional information 65.
		6398	13	3936.5	2^+		I_γ: from (α,γ):resonances.
		6957	13	3376.9	0^+		I_γ: from (α,γ):resonances.
		10333	100	0.0	0^+	(E1)	I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
10382	(1^- to 4^+)	6571	25	3810.18	3^-		I_γ: from (α,γ):resonances.
		8214	100	2167.472	2^+		I_γ: from (α,γ):resonances.
10398	1^-	2405 *1*		7992	(1^-,2,3^-)		E_γ: from (α,γ):resonances.
		5918	6 *4*	4479.98	4^-		E_γ: γ to 4^- is suspect from RUL (evaluator).
		6456 *8*		3936.5	2^+		
		7017 *8*	10 *3*	3376.9	0^+	[E1]	B(E1)(W.u.)=1.1×10^{-5} *+210−8* E_γ,I_γ: from (α,γ):resonances.
		8233 *8*	10 *3*	2167.472	2^+	[E1]	B(E1)(W.u.)=7×10^{-6} *+130−5* E_γ,I_γ: from (α,γ):resonances.
		10400 *8*	100 *20*	0.0	0^+	(E1)	E_γ,I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
10431	1^-	2803[@]		7628?	(1,2^+)		
		5273	1.1 *6*	5157.3	2^+	[E1]	B(E1)(W.u.)=1.6×10^{-6} *+43−12* I_γ: from (α,γ):resonances.
		5865	2.2 *11*	4565.5	2^+	[E1]	B(E1)(W.u.)=2.3×10^{-6} *+58−17* I_γ: from (α,γ):resonances.
		8263	5 *3*	2167.472	2^+	[E1]	B(E1)(W.u.)=1.9×10^{-6} *+49−15* I_γ: from (α,γ):resonances.
		10429	100 *20*	0.0	0^+	(E1)	B(E1)(W.u.)=1.9×10^{-5} *+18−7* I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.

$^{38}_{18}Ar_{20}$-42

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
10443	(4$^+$ to 8$^+$)	3155	100	7288.32	6$^+$		
10455	(5$^-$ to 8$^+$)	1964	100 *12*	8491.1	(6$^-$)		I_γ: from (α,pγ).
		2947	100 *17*	7508.12	7$^-$		I_γ: from (α,pγ).
		4046	76 *14*	6408.32	6$^+$		I_γ: from (α,pγ).
10494	1$^-$	6557	25 *6*	3936.5	2$^+$		I_γ: from (α,γ):resonances.
		8326	54 *11*	2167.472	2$^+$		I_γ: from (α,γ):resonances.
		10492	100 *20*	0.0	0$^+$		I_γ: from (α,γ):resonances.
10507	(1,2$^+$)	8339	100 *20*	2167.472	2$^+$		I_γ: from (α,γ):resonances.
		10505	45 *9*	0.0	0$^+$		I_γ: from (α,γ):resonances.
10516	(0$^+$)	5950	17 *4*	4565.5	2$^+$		I_γ: from (α,γ):resonances.
		6579	13 *4*	3936.5	2$^+$		I_γ: from (α,γ):resonances.
		6705	100 *21*	3810.18	3$^-$		I_γ: from (α,γ):resonances.
		8348	59 *11*	2167.472	2$^+$		I_γ: from (α,γ):resonances.
10547	(0$^+$)	6610	100 *21*	3936.5	2$^+$		I_γ: from (α,γ):resonances.
		6736	86 *19*	3810.18	3$^-$		I_γ: from (α,γ):resonances.
		8379	18 *4*	2167.472	2$^+$		I_γ: from (α,γ):resonances.
10557	(5$^-$ to 9$^-$)	3049	100	7508.12	7$^-$		
10587	1$^-$	4992	1.1 *6*	5594.6	2$^+$	[E1]	B(E1)(W.u.)=2.6×10^{-6} *+105−20* I_γ: from (α,γ):resonances.
		5503		5083.6	(2)$^-$		E_γ: 5506 *3* in (α,γ):resonances.
		5877[@]	<1	4709.3	0$^+$		I_γ: from (α,γ):resonances.
		6650	2.2 *12*	3936.5	2$^+$	[E1]	B(E1)(W.u.)=2.2×10^{-6} *+87−17* E_γ: 6664 *8* in (α,γ):resonances. I_γ: from (α,γ):resonances.
		6776		3810.18	3$^-$	[E2]	E_γ: 6783 *8* in (α,γ):resonances. I_γ: from (α,γ):resonances.
		8419	10.2 *23*	2167.472	2$^+$	[E1]	B(E1)(W.u.)=5×10^{-6} *+14−3* E_γ: 8415 *10* in (α,γ):resonances. I_γ: from (α,γ):resonances.
		10585	100 *21*	0.0	0$^+$	(E1)	B(E1)(W.u.)=2.5×10^{-5} *+42−11* I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
10589	(4$^+$ to 7$^-$)	2464	26 *6*	8125.0	(6$^-$)		I_γ: from (α,pγ).
		4180	100 *14*	6408.32	6$^+$		I_γ: from (α,pγ).
		6003	74 *14*	4585.87	5$^-$		I_γ: from (α,pγ).
10611	(1$^-$ to 4$^+$)	5097	7 *4*	5513.3	3$^-$		I_γ: from (α,γ):resonances.
		5453	4 *3*	5157.3	2$^+$		I_γ: from (α,γ):resonances.
		6674	23 *5*	3936.5	2$^+$		I_γ: from (α,γ):resonances.
		8443	100 *20*	2167.472	2$^+$		I_γ: from (α,γ):resonances.
10631.3	(2$^-$)	4773.5		5857.5	(2)$^-$		
		5547.3		5083.6	(2)$^-$		

$^{38}_{18}Ar_{20}$-43

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
10634	(6^+ to 10^+)	2064		8569.59	8^+		
10666	(1^-,2^+,3^-,4^+)	6100	16 *4*	4565.5	2^+		I_γ: from (α,γ):resonances.
		6729	35 *8*	3936.5	2^+		I_γ: from (α,γ):resonances.
		6855	45 *10*	3810.18	3^-		I_γ: from (α,γ):resonances.
		8498	100 *20*	2167.472	2^+		I_γ: from (α,γ):resonances.
10676	(4^+ to 8^+)	4267	100	6408.32	6^+		
10684	1^-	4950	10	5733.9	1^-		I_γ: from (α,γ):resonances.
		10682	100	0.0	0^+	(E1)	I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
10726	(1^- to 4^+)	5173	19 *4*	5552.21	1^+,2^+		I_γ: from (α,γ):resonances.
		5212	19 *4*	5513.3	3^-		I_γ: from (α,γ):resonances.
		6915	51 *11*	3810.18	3^-		I_γ: from (α,γ):resonances.
		8557	100 *21*	2167.472	2^+		I_γ: from (α,γ):resonances.
10768	2^+	5610	13	5157.3	2^+		I_γ: from (α,γ):resonances.
		5684	19 *4*	5083.6	$(2)^-$		I_γ: from (α,γ):resonances.
		5891	8 *4*	4877.0	3^-		I_γ: from (α,γ):resonances.
		8599	100 *21*	2167.472	2^+		I_γ: from (α,γ):resonances.
		10766	49 *10*	0.0	0^+		I_γ: from (α,γ):resonances.
10803	2^+	5645	37 *7*	5157.3	2^+		I_γ: from (α,γ):resonances.
		6237	93 *20*	4565.5	2^+		I_γ: from (α,γ):resonances.
		6992	57 *13*	3810.18	3^-		I_γ: from (α,γ):resonances.
		8634	100 *20*	2167.472	2^+		I_γ: from (α,γ):resonances.
		10801	47 *10*	0.0	0^+	(E2)	I_γ: from (α,γ):resonances. Mult.: Q from γ(θ) in (α,γ):resonances.
10815.6	(0 to 3^-)	x					I_γ: 27% γ absolute branching is unobserved in (p,γ):resonances. Additional information 66.
		4042.7	9	6772.7	1^-		
		4241.0	34	6574.3	1^-		
		4461.8	100	6353.5	1^-		
		5081.3	23	5733.9	1^-		
		6249.5[@]	<1.6	4565.5	2^+		
		6878.4[@]	<1.6	3936.5	2^+		
		7004.7[@]	<2.3	3810.18	3^-		
		7437.9[@]	<2.3	3376.9	0^+		
		8647.1[@]	<5	2167.472	2^+		
		10813.9[@]	<2	0.0	0^+		
10827.0	(2)	x					I_γ: 40% γ absolute branching is unobserved in (p,γ):resonances. Additional information 67.
		3591	28	7236	(2^+)		
		4252.4	17	6574.3	1^-		

$^{38}_{18}Ar_{20}$-44

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
10827.0	(2)	4341.3	19	6485.4	$(1^-,2,3^-)$	
		4576.8	47	6249.9	2^+	
		4612.9	100	6213.8	(2^+)	
		5232.0	27	5594.6	2^+	
		5313.3	15	5513.3	3^-	
		5669.2	37	5157.3	2^+	
		5949.5	41	4877.0	3^-	
		6260.9@	<4	4565.5	2^+	
		6346.5	13	4479.98	4^-	
		6889.8	23	3936.5	2^+	
		7016.1	17	3810.18	3^-	
		7449.3@	<5	3376.9	0^+	
		8658.5	9	2167.472	2^+	
		10825.3	6.7	0.0	0^+	
10850.1	$(2^-,3^-)$	x				I_γ: 15% γ absolute branching is unobserved in (p,γ):resonances. Additional information 68.
		2956.6	7.0	7893.4	$(1^+,2^+)$	
		3167	2.6	7683	$(3^-,4^+)$	
		3398	10.4	7452	$(1^-$ to $4^+)$	
		3902.0	4.1	6947.9	(2^+)	
		3946.1	28	6903.8	$2^-,3^-$	
		4025.9	8.9	6824.0	$(2^+,3^-)$	
		4168.3	3.3	6681.6	(0,1,2)	
		4275.5	26	6574.3	1^-	
		4354.0	3.3	6495.8	$(2^-,3^-)$	
		4364.4	8.9	6485.4	$(1^-,2,3^-)$	
		4511.2	18.9	6338.6	$1^-,2^-,3^-$	
		4599.9	13.3	6249.9	2^+	
		4640.4	4.1	6209.4	4^-	
		4808.0	3.3	6041.8	$(3^-,4^+)$	
		4992.2	15.9	5857.5	$(2)^-$	
		5024.8	4.1	5824.9	3^-	
		5115.8	10.7	5733.9	1^-	
		5336.4	7.8	5513.3	3^-	
		5692.3	3.3	5157.3	2^+	
		5766.0	6.7	5083.6	$(2)^-$	
		5972.6	8.9	4877.0	3^-	
		6284.0	3.7	4565.5	2^+	
		6369.5@	<1.1	4479.98	4^-	
		6912.9	5.9	3936.5	2^+	
		7039.2	5.9	3810.18	3^-	

$^{38}_{18}Ar_{20}$-45

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	Comments
10850.1	(2⁻,3⁻)	7472.4[@]	<1.5	3376.9	0⁺		
		8681.6	100	2167.472	2⁺		
		10848.4[@]	<0.7	0.0	0⁺		
10857	1⁻	10855	100	0.0	0⁺	(E1)	Mult.: D from γ(θ) in (α,γ):resonances.
10873.8	(0⁺ to 3⁻)	x					I_γ: 27% γ absolute branching is unobserved in (p,γ):resonances. Additional information 69.
		3639.8	5.0	7233.8	(1⁻ to 4⁺)		
		4028	3.2	6852	(1,2⁺)		
		4520.0	2.4	6353.5	1⁻		
		4534.9	3.9	6338.6	1⁻,2⁻,3⁻		
		5278.8	5.2	5594.6	2⁺		
		5716.0	3.0	5157.3	2⁺		
		5789.7	6.3	5083.6	(2)⁻		
		6307.7[@]	<1.5	4565.5	2⁺		
		6393.2[@]	<1.3	4479.98	4⁻		
		6936.6	6.3	3936.5	2⁺		
		7062.9[@]	<0.2	3810.18	3⁻		
		7496.1[@]	<0.2	3376.9	0⁺		
		8705.3	100	2167.472	2⁺		
		10872.1[@]	<0.4	0.0	0⁺		
10890	(5⁻ to 8⁻)	2765	59 *10*	8125.0	(6⁻)		
		3382	100 *10*	7508.12	7⁻		
10914.5	(1⁻,2,3⁻)	x					I_γ: 10% γ absolute branching is unobserved in (p,γ):resonances. Additional information 70.
		3680.5	26	7233.8	(1⁻ to 4⁺)		
		3813.5	22	7100.8	(1⁻ to 4⁺)		
		4010.5	10	6903.8	2⁻,3⁻		
		4044.4	9	6869.9	(2⁻,3,4⁺)		
		4090.3	20	6824.0	(2⁺,3⁻)		
		4292.6	13	6621.6	(1⁻,2,3⁻)		
		4428.8	46	6485.4	(1⁻,2,3⁻)		
		4560.7	28	6353.5	1⁻		
		5056.6	19	5857.5	(2)⁻		
		5089.2	1.9	5824.9	3⁻		
		5319.5	44	5594.6	2⁺		
		5400.8	38	5513.3	3⁻		
		5830.4	28	5083.6	(2)⁻		
		6037.0	31	4877.0	3⁻		
		6348.4	34	4565.5	2⁺		
		6977.3	12	3936.5	2⁺		

$^{38}_{18}Ar_{20}$-46

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
10914.5	(1⁻,2,3⁻)	7103.6	81	3810.18	3⁻		
		8745.9	100	2167.472	2⁺		
10933	1⁻	8764	47	2167.472	2⁺		I_γ: from (α,γ):resonances.
		10931	100	0.0	0⁺	(E1)	I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
10945.0	(1⁻,2⁺)	x					I_γ: 21% γ absolute branching is unobserved in (p,γ):resonances. Additional information 71.
		3262	2.5	7683	(3⁻,4⁺)		
		4041.0	14.0	6903.8	2⁻,3⁻		
		4370.4	6.0	6574.3	1⁻		
		4448.9	7.5	6495.8	(2⁻,3⁻)		
		4591.2	11.1	6353.5	1⁻		
		4606.1	22	6338.6	1⁻,2⁻,3⁻		
		4694.8	8.5	6249.9	2⁺		
		5210.7	15.1	5733.9	1⁻		
		5350.0	13.1	5594.6	2⁺		
		5392.4	4.5	5552.21	1⁺,2⁺		
		5431.3	8.5	5513.3	3⁻		
		5787.2	13.6	5157.3	2⁺		
		6067.5	91	4877.0	3⁻		
		6378.9	39	4565.5	2⁺		
		7007.8	7.1	3936.5	2⁺		
		7134.1	20	3810.18	3⁻		
		7567.3[@]	<2	3376.9	0⁺		
		8776.4	100	2167.472	2⁺		
		10943.3	13.6	0.0	0⁺		
10947.4	(2⁻,3,4⁺)	x					I_γ: 23% γ absolute branching is unobserved in (p,γ):resonances. Additional information 72.
		3264	5	7683	(3⁻,4⁺)		
		4077.3	7	6869.9	(2⁻,3,4⁺)		
		4123.2	5	6824.0	(2⁺,3⁻)		
		4737.7	5	6209.4	4⁻		
		5089.5	5	5857.5	(2)⁻		
		5433.7	21	5513.3	3⁻		
		5863.3	11	5083.6	(2)⁻		
		6381.3	64	4565.5	2⁺		
		6466.8	18	4479.98	4⁻		
		7010.2[@]	<2.5	3936.5	2⁺		
		7136.5	32	3810.18	3⁻		
		7569.7[@]	<1.4	3376.9	0⁺		
		8778.8	100	2167.472	2⁺		

$^{38}_{18}Ar_{20}$-47

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	Comments
10947.4	$(2^-,3,4^+)$	10945.7[@]	<0.7	0.0	0^+		
10947.5	(9^-)	773 *1*	28 *10*	10174.29	9^-		E_γ,I_γ: from (^{28}Si,α2pγ).
		1598 *2*	10 *4*	9349.6	(7^-)		E_γ,I_γ: from (^{28}Si,α2pγ).
		2378 *1*	100 *7*	8569.59	8^+	D	E_γ,I_γ,Mult.: from (^{28}Si,α2pγ).
		3439 *2*	10 *4*	7508.12	7^-		E_γ,I_γ: from (^{28}Si,α2pγ).
		3877.1[@]	43 *7*	7070.19	$(6)^-$		E_γ,I_γ: γ from (α,pγ) only, treated as questionable by the evaluator since it involves mult=M3, which is unlikely. In addition a γ ray with the branching ratio reported in (α,pγ) should have been seen in (^{28}Si,α2pγ).
10963.3	$2^{(+)}$	x					I_γ: 32% γ absolute branching is unobserved in (p,γ):resonances. Additional information 73.
		3069.8	4.7	7893.4	$(1^+,2^+)$		
		3280	5.3	7683	$(3^-,4^+)$		
		3532.1	11.3	7431.0	$(2^-,3,4^+)$		
		3593	7.2	7370	(1^+)		
		3629	13.4	7334	$(1^-$ to $4^+)$		
		3729.3	5.3	7233.8	$(1^-$ to $4^+)$		
		4015.2	25	6947.9	(2^+)		
		4059.3	26	6903.8	$2^-,3^-$		
		4139.1	100	6824.0	$(2^+,3^-)$		
		4190.4	1.9	6772.7	1^-		
		4388.7	26	6574.3	1^-		
		4609.5	73	6353.5	1^-		
		4713.1	13.4	6249.9	2^+		
		4749.2	6.6	6213.8	(2^+)		
		5105.4	10.7	5857.5	$(2)^-$		
		5138.0	3.4	5824.9	3^-		
		5229.0	13.4	5733.9	1^-		
		5449.6	11.9	5513.3	3^-		
		5613.5	1.9	5349.4	4^+		
		5805.5	40	5157.3	2^+		
		6085.8	33	4877.0	3^-		
		6397.2	33	4565.5	2^+		
		7585.6	6.6	3376.9	0^+		
		8794.7	2.7	2167.472	2^+		
10988.2	(2)	x					I_γ: 15% γ absolute branching is unobserved in (p,γ):resonances. Additional information 74.
		4040.1	2.7	6947.9	(2^+)		
		4084.2	4.6	6903.8	$2^-,3^-$		
		4118.1	9.1	6869.9	$(2^-,3,4^+)$		
		4649.3	4.1	6338.6	$1^-,2^-,3^-$		
		4778.5	1.1	6209.4	4^-		

$^{38}_{18}Ar_{20}$-48

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	δ#	Comments
10988.2	(2)	5130.3	6.8	5857.5	$(2)^-$			
		5162.9	4.6	5824.9	3^-			
		5435.6	4.6	5552.21	$1^+,2^+$			
		5474.5	2.3	5513.3	3^-			
		5830.4	2.3	5157.3	2^+			
		5904.1	2.3	5083.6	$(2)^-$			
		6110.7	2.3	4877.0	3^-			
		6422.1	23	4565.5	2^+			
		6507.6	2.3	4479.98	4^-			
		7051.0	9.1	3936.5	2^+			
		7177.3	11.4	3810.18	3^-			
		7610.5	100	3376.9	0^+			
		10986.5	3.0	0.0	0^+			
11013	1	5188	<15	5824.9	3^-			I_γ: from (α,γ):resonances.
		7635	23	3376.9	0^+			I_γ: from (α,γ):resonances.
		8844	29	2167.472	2^+			I_γ: from (α,γ):resonances.
		11011	100	0.0	0^+	D		I_γ: from (α,γ):resonances. Mult.: from γ(θ) in (α,γ):resonances.
11032	1^-	7095@	<12	3936.5	2^+			I_γ: from (α,γ):resonances.
		8863	22	2167.472	2^+	(E1+M2)	−0.3 *2*	I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances; polarity from level scheme.
		11030	100	0.0	0^+	(E1)		I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances; polarity from level scheme.
11045.2	(3^-)	6479.1	25	4565.5	2^+			I_γ: from (α,γ):resonances.
		8876.6	100	2167.472	2^+	D+Q	+0.07 *3*	I_γ: from (α,γ):resonances. Mult.,δ: from γ(θ) in (α,γ):resonances.
11053.7	(2)	x						I_γ: 39% γ absolute branching is unobserved in (p,γ):resonances. Additional information 75.
		3371	5.5	7683	$(3^-,4^+)$			
		3720	6.4	7334	$(1^-$ to $4^+)$			
		3763.9	17	7289.6	$(3^-,4^+)$			
		3819.7	24	7233.8	$(1^-$ to $4^+)$			
		4431.8	53	6621.6	$(1^-,2,3^-)$			
		4714.8	31	6338.6	$1^-,2^-,3^-$			
		4844.0	11.8	6209.4	4^-			
		5011.5	100	6041.8	$(3^-,4^+)$			
		5195.8	27	5857.5	$(2)^-$			
		5458.7	11.8	5594.6	2^+			
		5540.0	31	5513.3	3^-			
		5895.9	50	5157.3	2^+			
		6487.6	20	4565.5	2^+			

$^{38}_{18}Ar_{20}$-49

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11053.7	(2)	6573.1@	<8	4479.98	4^-	
		7116.5@	<8	3936.5	2^+	
		7242.8	37	3810.18	3^-	
		7676.0@	<5	3376.9	0^+	
		8885.1	100	2167.472	2^+	
		11052.0	30	0.0	0^+	
11059.2	$(1,2^+)$	x				I_γ: 17% γ absolute branching is unobserved in (p,γ):resonances. Additional information 76.
		4111.1	2.6	6947.9	(2^+)	
		4484.6	6.0	6574.3	1^-	
		5324.9	5.3	5733.9	1^-	
		5506.6	2.1	5552.21	$1^+,2^+$	
		5975.1	2.8	5083.6	$(2)^-$	
		6349.3	3.8	4709.3	0^+	
		6493.1	4.7	4565.5	2^+	
		7122.0@	<1.7	3936.5	2^+	
		7248.3@	<1.3	3810.18	3^-	
		7681.5	2.8	3376.9	0^+	
		8890.6	26	2167.472	2^+	
		11057.5	100	0.0	0^+	
11066.1	(2)	x				I_γ: 10% γ absolute branching is unobserved in (p,γ):resonances. Additional information 77.
		3696	11.1	7370	(1^+)	
		3830	7.4	7236	(2^+)	
		3965.1	3.3	7100.8	$(1^-$ to $4^+)$	
		4118.0	2.6	6947.9	(2^+)	
		4241.8	41	6824.0	$(2^+,3^-)$	
		4570.0	18.5	6495.8	$(2^-,3^-)$	
		4580.4	7.4	6485.4	$(1^-,2,3^-)$	
		4815.9	3.3	6249.9	2^+	
		4852.0	3.7	6213.8	(2^+)	
		5208.2	4.1	5857.5	$(2)^-$	
		5240.8	7.4	5824.9	3^-	
		5331.8	4.8	5733.9	1^-	
		5471.1	26	5594.6	2^+	
		5513.5	4.8	5552.21	$1^+,2^+$	
		5552.4	3.7	5513.3	3^-	
		6188.6	18.5	4877.0	3^-	
		6356.2	3.7	4709.3	0^+	
		6500.0	11.1	4565.5	2^+	

$^{38}_{18}Ar_{20}$-50

Adopted Levels, Gammas (continued)

$\gamma(^{38}Ar)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11066.1	(2)	6585.5	4.8	4479.98	4^-			
		7128.9	52	3936.5	2^+			
		7255.2	7.4	3810.18	3^-			
		8897.5	100	2167.472	2^+			
		11064.4	3.7	0.0	0^+			
11067	1^-	6501	18	4565.5	2^+			I_γ: from (α,γ):resonances.
		7130[@]	<18	3936.5	2^+			I_γ: from (α,γ):resonances.
		8898	61	2167.472	2^+	(E1(+M2))	0.0 *2*	I_γ: from (α,γ):resonances. Mult.,δ: D+Q from $\gamma(\theta)$ in (α,γ):resonances.
		11065	100	0.0	0^+	(E1)		Mult.: D from $\gamma(\theta)$ in (α,γ):resonances.
11068		2943		8125.0	(6^-)			
11078		1434	100	9644	$(5^-$ to $9^-)$			
11087	$(4^+$ to $8^+)$	3798	100	7288.32	6^+			
11096.9	(2^+)	x						I_γ: 28% γ absolute branching is unobserved. Additional information 78.
		3203.4	4.7	7893.4	$(1^+,2^+)$			
		3763	18.7	7334	$(1^-$ to $4^+)$			
		3807.1	6.0	7289.6	$(3^-,4^+)$			
		3995.9	5.3	7100.8	$(1^-$ to $4^+)$			
		4192.9	4.0	6903.8	$2^-,3^-$			
		4226.7	8.0	6869.9	$(2^-,3,4^+)$			
		4272.6	6.7	6824.0	$(2^+,3^-)$			
		4522.3	32	6574.3	1^-			
		4611.2	3.9	6485.4	$(1^-,2,3^-)$			
		4743.1	25	6353.5	1^-			
		4758.0	33	6338.6	$1^-,2^-,3^-$			
		4846.7	6.0	6249.9	2^+			
		4882.8	13.3	6213.8	(2^+)			
		5239.0	87	5857.5	$(2)^-$			
		5271.6	5.4	5824.9	3^-			
		5362.6	15.4	5733.9	1^-			
		5501.9	27	5594.6	2^+			
		5544.3	3.3	5552.21	$1^+,2^+$			
		5583.2	40	5513.3	3^-			
		5747.0	2.6	5349.4	4^+			
		5939.1	40	5157.3	2^+			
		6012.8	8.0	5083.6	$(2)^-$			
		6530.8	23	4565.5	2^+			
		7159.7	20	3936.5	2^+			
		7286.0	20	3810.18	3^-			
		7719.2	5.3	3376.9	0^+			

$^{38}_{18}Ar_{20}$-51

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11096.9	(2$^+$)	8928.3	100	2167.472	2$^+$			
		11095.2	6.7	0.0	0$^+$			
11109	(4$^-$ to 8$^-$)	2984	100	8125.0	(6$^-$)			
11122.9	3$^-$	4637.2	13	6485.4	(1$^-$,2,3$^-$)			I_γ: from (α,γ):resonances.
		6642.3	14	4479.98	4$^-$			I_γ: from (α,γ):resonances.
		8954.3	100	2167.472	2$^+$	D+Q	+0.11 *4*	I_γ: from (α,γ):resonances. Mult.,δ: D+Q from γ(θ) in (α,γ):resonances.
11146.9	(2,3$^-$)	x						I_γ: 31% γ absolute branching is unobserved. Additional information 79.
		4661.2	10.4	6485.4	(1$^-$,2,3$^-$)			
		4793.1	6.9	6353.5	1$^-$			
		4808.0	6.9	6338.6	1$^-$,2$^-$,3$^-$			
		4896.7	10.4	6249.9	2$^+$			
		4932.8	17	6213.8	(2$^+$)			
		5321.6	6.9	5824.9	3$^-$			
		5551.9	13.8	5594.6	2$^+$			
		5594.2	3.5	5552.21	1$^+$,2$^+$			
		5633.2	3.5	5513.3	3$^-$			
		5797.0	3.5	5349.4	4$^+$			
		6580.8	6.9	4565.5	2$^+$			
		6666.3	6.9	4479.98	4$^-$			
		7209.7	6.9	3936.5	2$^+$			
		7336.0	10.4	3810.18	3$^-$			
		8978.3	100	2167.472	2$^+$			
		11145.1	24	0.0	0$^+$			
11161.0	(2$^-$,3,4$^+$)	x						I_γ: 11% γ absolute branching is unobserved. Additional information 80.
		4559.1	7.8	6601.59	4$^-$			
		4675.3	15.0	6485.4	(1$^-$,2,3$^-$)			
		4684.1	9.4	6476.6	(0$^+$ to 3$^-$)			
		4951.3	7.2	6209.4	4$^-$			
		5335.7	9.4	5824.9	3$^-$			
		5608.3	5.0	5552.21	1$^+$,2$^+$			
		5647.2	5.9	5513.3	3$^-$			
		6076.9	28	5083.6	(2)$^-$			
		7223.8	100	3936.5	2$^+$			
		7350.1	6.3	3810.18	3$^-$			
		8992.4	81	2167.472	2$^+$			
11163	(6,7,8)	2672	58	8491.1	(6$^-$)			I_γ: from (α,pγ).
		3039	100	8124	(3$^-$ to 6$^+$)			I_γ: from (α,pγ).
		3086	76	8077.20	7$^+$			I_γ: from (α,pγ).
		3655	70	7508.12	7$^-$			

$^{38}_{18}Ar_{20}$-52

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Comments
11167.6	(3⁻)	4297.4	2.3	6869.9	(2⁻,3,4⁺)	
		4394.6	0.6	6772.7	1⁻	
		4593.0	1.1	6574.3	1⁻	
		4828.7	0.12	6338.6	1⁻,2⁻,3⁻	
		4917.4	0.6	6249.9	2⁺	
		4957.9	0.6	6209.4	4⁻	
		5309.7	1.2	5857.5	(2)⁻	
		5342.3	0.5	5824.9	3⁻	
		5433.3	0.36	5733.9	1⁻	
		5572.6	2.0	5594.6	2⁺	
		5653.8	2.5	5513.3	3⁻	
		6083.5	0.6	5083.6	(2)⁻	
		6290.0	3.3	4877.0	3⁻	
		6601.5[@]	<0.1	4565.5	2⁺	
		6687.0[@]	<0.1	4479.98	4⁻	
		7230.4	2.6	3936.5	2⁺	
		7356.7[@]	<0.4	3810.18	3⁻	
		7789.8[@]	<0.4	3376.9	0⁺	
		8999.0	100	2167.472	2⁺	
		11165.8	0.7	0.0	0⁺	
11173.0	3⁻	x				I_γ: 18% γ absolute branching is unobserved. Additional information 81.
		3490	4.6	7683	(3⁻,4⁺)	
		3721	4.2	7452	(1⁻ to 4⁺)	
		3741.8	16.7	7431.0	(2⁻,3,4⁺)	
		3883.2	8.3	7289.6	(3⁻,4⁺)	
		3980.6	12.5	7192.2	(2⁻,3,4)	
		4072.0	12.5	7100.8	(1⁻ to 4⁺)	
		4127	5.4	7046	(3⁻,4⁺)	
		4348.6	16.7	6824.0	(2⁺,3⁻)	
		4551.1	8.3	6621.6	(1⁻,2,3⁻)	
		4571.1	1.7	6601.59	4⁻	
		4676.9	38	6495.8	(2⁻,3⁻)	
		4958.9	4.6	6213.8	(2⁺)	
		4963.3	4.2	6209.4	4⁻	
		5119.4	4.2	6053.2	(4⁺)	
		5130.8	8.3	6041.8	(3⁻,4⁺)	
		5578.0	12.5	5594.6	2⁺	
		6015.2	8.3	5157.3	2⁺	
		6295.4	46	4877.0	3⁻	
		6606.9	3.3	4565.5	2⁺	

$^{38}_{18}Ar_{20}$-53

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11173.0	3⁻	6692.4	4.2	4479.98	4⁻			
		7235.8	8.3	3936.5	2⁺			
		7362.1	8.3	3810.18	3⁻			
		7795.2	1.3	3376.9	0⁺			
		9004.4	100	2167.472	2⁺			
11174	(5⁻ to 9⁻)	2201	100	8972.85	7⁻			
11175	1⁻	6017[@]	<24	5157.3	2⁺			I_γ: from (α,γ):resonances.
		7238	45	3936.5	2⁺			I_γ: from (α,γ):resonances.
		9006	100	2167.472	2⁺	(E1(+M2))	0.00 *3*	I_γ: from (α,γ):resonances. Mult.: D(+Q) from γ(θ) in (α,γ):resonances.
		11173	93	0.0	0⁺	(E1)		I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
11184.8	(2⁺,3⁻)	4236.6	1.5	6947.9	(2⁺)			
		4314.6	3.0	6869.9	(2⁻,3,4⁺)			
		4562.9	1.1	6621.6	(1⁻,2,3⁻)			
		4610.2	1.8	6574.3	1⁻			
		5632.1	3.0	5552.21	1⁺,2⁺			
		5671.0	12.1	5513.3	3⁻			
		6027.0	6.1	5157.3	2⁺			
		6100.7	1.5	5083.6	(2)⁻			
		6307.2	3.0	4877.0	3⁻			
		7247.6	7.6	3936.5	2⁺			
		7373.9	3.0	3810.18	3⁻			
		9016.2	100	2167.472	2⁺			
		11183.0	0.76	0.0	0⁺			
11197.6	(1⁻,2,3⁻)	x						I_γ: 18% γ absolute branching is unobserved. Additional information 82.
		3205	14.3	7992	(1⁻,2,3⁻)			
		3963.6	6.2	7233.8	(1⁻ to 4⁺)			
		4373.3	38	6824.0	(2⁺,3⁻)			
		4424.6	4.8	6772.7	1⁻			
		4843.8	19	6353.5	1⁻			
		4858.7	9.5	6338.6	1⁻,2⁻,3⁻			
		4947.4	14.3	6249.9	2⁺			
		5339.7	33	5857.5	(2)⁻			
		5372.3	19	5824.9	3⁻			
		5463.3	19	5733.9	1⁻			
		5602.6	14.3	5594.6	2⁺			
		5683.8	14.3	5513.3	3⁻			
		6039.8	19	5157.3	2⁺			
		6113.5	16	5083.6	(2)⁻			
		6320.0	0.95	4877.0	3⁻			

$^{38}_{18}Ar_{20}$-54

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11197.6	(1⁻,2,3⁻)	6631.5	19	4565.5	2⁺	
		7260.4	19	3936.5	2⁺	
		7386.6	14	3810.18	3⁻	
		9029.0	100	2167.472	2⁺	
11199	(8,9,10⁺)	2629	100	8569.59	8⁺	
11201.9	1⁻	3210	1.3	7992	(1⁻,2,3⁻)	
		3308.3	0.9	7893.4	(1⁺,2⁺)	
		3967.9	0.9	7233.8	(1⁻ to 4⁺)	
		4377.6	5.4	6824.0	(2⁺,3⁻)	
		4428.9	1.3	6772.7	1⁻	
		4520.0	2.7	6681.6	(0,1,2)	
		4627.3	1.4	6574.3	1⁻	
		4725.0	10.7	6476.6	(0⁺ to 3⁻)	
		4848.1	1.6	6353.5	1⁻	
		4951.7	1.3	6249.9	2⁺	
		5344.0	3.8	5857.5	(2)⁻	
		5467.6	2.0	5733.9	1⁻	
		5606.9	3.2	5594.6	2⁺	
		6044.1	1.8	5157.3	2⁺	
		6117.8	5.9	5083.6	(2)⁻	
		6635.8	7.1	4565.5	2⁺	
		7264.7	20	3936.5	2⁺	
		7390.9	1.1	3810.18	3⁻	
		7824.1	1.6	3376.9	0⁺	
		9033.3	8.9	2167.472	2⁺	
		11200.1	100	0.0	0⁺	
11210.4	(1⁻,2,3⁻)	x				I_γ: 11% γ absolute branching is unobserved. Additional information 83.
		3316.8	1.4	7893.4	(1⁺,2⁺)	
		3920.6	1.6	7289.6	(3⁻,4⁺)	
		3976.4	1.1	7233.8	(1⁻ to 4⁺)	
		4262.2	2.8	6947.9	(2⁺)	
		4386.1	0.7	6824.0	(2⁺,3⁻)	
		4437.4	0.85	6772.7	1⁻	
		4635.8	1.3	6574.3	1⁻	
		4996.2	1.3	6213.8	(2⁺)	
		5352.5	1.3	5857.5	(2)⁻	
		5385.1	0.4	5824.9	3⁻	
		5476.1	1.6	5733.9	1⁻	
		5657.7	4.2	5552.21	1⁺,2⁺	
		5696.6	0.7	5513.3	3⁻	
		6644.3	2.8	4565.5	2⁺	

$^{38}_{18}Ar_{20}$-55

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11210.4	(1⁻,2,3⁻)	7273.2	3.7	3936.5	2⁺	
		9041.8	100	2167.472	2⁺	
11214.7	(1⁻,2⁺)	x				I_γ: 16% γ absolute branching is unobserved. Additional information 84.
		6056.9	9.1	5157.3	2⁺	
		6504.8	11.4	4709.3	0⁺	
		6648.6	43	4565.5	2⁺	
		7277.5	5.2	3936.5	2⁺	
		9046.1	23	2167.472	2⁺	
		11212.9	100	0.0	0⁺	
11227.3	(2⁺)	x				I_γ: 22% γ absolute branching is unobserved. Additional information 85.
		3235	7.0	7992	(1⁻,2,3⁻)	
		3775	4.0	7452	(1⁻ to 4⁺)	
		3796.1	3.0	7431.0	(2⁻,3,4⁺)	
		3937.5	7.0	7289.6	(3⁻,4⁺)	
		3993.3	10.0	7233.8	(1⁻ to 4⁺)	
		4279.1	4.5	6947.9	(2⁺)	
		4403.0	10.0	6824.0	(2⁺,3⁻)	
		4605.4	25	6621.6	(1⁻,2,3⁻)	
		4731.2	10.0	6495.8	(2⁻,3⁻)	
		4741.6	3.0	6485.4	(1⁻,2,3⁻)	
		4888.4	10.0	6338.6	1⁻,2⁻,3⁻	
		4977.0	3.0	6249.9	2⁺	
		5013.1	35	6213.8	(2⁺)	
		5369.4	10.0	5857.5	(2)⁻	
		5402.0	2.0	5824.9	3⁻	
		5493.0	2.5	5733.9	1⁻	
		5674.6	15.0	5552.21	1⁺,2⁺	
		5877.4	1.0	5349.4	4⁺	
		6069.5	20	5157.3	2⁺	
		6143.2	5.0	5083.6	(2)⁻	
		6349.7	10.0	4877.0	3⁻	
		6661.2	35	4565.5	2⁺	
		7290.0	5.0	3936.5	2⁺	
		7416.3	50	3810.18	3⁻	
		9058.7	100	2167.472	2⁺	
		11225.5	5.0	0.0	0⁺	
11233.6	(2⁺,3⁻)	x				I_γ: 28% γ absolute branching is unobserved. Additional information 86.
		4659.0	6.7	6574.3	1⁻	
		5258.4	11.1	5974.8	(0⁺ to 3⁻)	

$^{38}_{18}Ar_{20}$-56

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult. [#]	Comments
11233.6	(2$^+$,3$^-$)	5574.6	6.7	5658.61	5$^-$		
		6075.8	4.4	5157.3	2$^+$		
		6149.5	4.4	5083.6	(2)$^-$		
		6667.5	6.7	4565.5	2$^+$		
		9065.0	20	2167.472	2$^+$		
		11231.8	100	0.0	0$^+$		
11244.8	(3$^+$)	x					I_γ: 19% γ absolute branching is unobserved. Additional information 87.
		3875	40	7370	(1$^+$)		
		4010.8	8.0	7233.8	(1$^-$ to 4$^+$)		
		4143.8	33	7100.8	(1$^-$ to 4$^+$)		
		4199	60	7046	(3$^-$,4$^+$)		
		4420.5	60	6824.0	(2$^+$,3$^-$)		
		4759.1	30	6485.4	(1$^-$,2,3$^-$)		
		4905.9	16	6338.6	1$^-$,2$^-$,3$^-$		
		4968.4	30	6276.1	4$^+$		
		4994.5	30	6249.9	2$^+$		
		5030.6	65	6213.8	(2$^+$)		
		5035.0	90	6209.4	4$^-$		
		5191.2	30	6053.2	(4$^+$)		
		6367.2	60	4877.0	3$^-$		
		6764.2	80	4479.98	4$^-$		
		7307.5	20	3936.5	2$^+$		
		7433.8	60	3810.18	3$^-$		
		9076.2	100	2167.472	2$^+$		
11250	1$^-$	7872	<10	3376.9	0$^+$		I_γ: from (α,γ):resonances.
		11248	100	0.0	0$^+$	(E1)	I_γ: from (α,γ):resonances. Mult.: D from γ(θ) in (α,γ):resonances.
11264.9	(2$^-$,3$^-$)	x					I_γ: 34% γ absolute branching is unobserved. Additional information 88.
		4316.7	18	6947.9	(2$^+$)		
		4491.9	100	6772.7	1$^-$		
		4690.3	41	6574.3	1$^-$		
		4911.1	65	6353.5	1$^-$		
		5014.6	11.8	6249.9	2$^+$		
		5439.6	11.8	5824.9	3$^-$		
		5530.6	53	5733.9	1$^-$		
		5751.1	24	5513.3	3$^-$		
		6387.3	41	4877.0	3$^-$		
		6784.3	5.9	4479.98	4$^-$		
		7453.9	18	3810.18	3$^-$		

$^{38}_{18}Ar_{20}$-57

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11268.1	3⁻	x						I_γ: 14% γ absolute branching is unobserved. Additional information 89.
		3978.3	3.2	7289.6	(3⁻,4⁺)			
		4222	3.2	7046	(3⁻,4⁺)			
		4646.2	16	6621.6	(1⁻,2,3⁻)			
		4693.5	3.2	6574.3	1⁻			
		4782.4	3.2	6485.4	(1⁻,2,3⁻)			
		4914.3	9.7	6353.5	1⁻			
		4929.2	3.2	6338.6	1⁻,2⁻,3⁻			
		5053.9	16	6213.8	(2⁺)			
		5533.8	3.2	5733.9	1⁻			
		5673.0	16	5594.6	2⁺			
		5715.4	26	5552.21	1⁺,2⁺			
		5754.3	6.5	5513.3	3⁻			
		6110.3	16	5157.3	2⁺			
		6184.0	6.5	5083.6	(2)⁻			
		6390.5	9.7	4877.0	3⁻			
		7330.8	35	3936.5	2⁺			
		9099.5	100	2167.472	2⁺	(E1(+M2))	−0.02 *3*	Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances.
11272.1	(3⁻)	x						I_γ: 45% γ absolute branching is unobserved. Additional information 90.
		3902	23	7370	(1⁺)			
		4776.0	15	6495.8	(2⁻,3⁻)			
		5062.3	46	6209.4	4⁻			
		5446.8	15	5824.9	3⁻			
		5677.0	38	5594.6	2⁺			
		5922.2	15	5349.4	4⁺			
		6394.5	15	4877.0	3⁻			
		6706.0	69	4565.5	2⁺			
		7334.8	100	3936.5	2⁺			
		7461.1	23	3810.18	3⁻			
		9103.5	62	2167.472	2⁺			
11275.7	(1,2⁺)	4174.7	2.0	7100.8	(1⁻ to 4⁺)			
		4593.8	2.0	6681.6	(0,1,2)			
		4653.8	2.0	6621.6	(1⁻,2,3⁻)			
		4790.0	8.2	6485.4	(1⁻,2,3⁻)			
		4921.9	4.1	6353.5	1⁻			
		4936.8	2.0	6338.6	1⁻,2⁻,3⁻			
		5061.5	4.1	6213.8	(2⁺)			
		5300.5	27	5974.8	(0⁺ to 3⁻)			
		5417.8	4.1	5857.5	(2)⁻			
		5541.4	2.0	5733.9	1⁻			

$^{38}_{18}Ar_{20}$-58

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11275.7	(1,2$^+$)	5680.6	2.0	5594.6	2$^+$			
		5723.0	2.0	5552.21	1$^+$,2$^+$			
		6191.6	2.0	5083.6	(2)$^-$			
		6565.8	4.1	4709.3	0$^+$			
		6709.6	4.1	4565.5	2$^+$			
		7338.4	6.1	3936.5	2$^+$			
		7897.9	12.2	3376.9	0$^+$			
		9107.1	10.2	2167.472	2$^+$			
		11273.9	100	0.0	0$^+$			
11285.4	(2$^+$,3)	x						I_γ: 35% γ absolute branching is unobserved. Additional information 91.
		3915	3.6	7370	(1$^+$)			
		4461.1	5.4	6824.0	(2$^+$,3$^-$)			
		5427.5	5.4	5857.5	(2)$^-$			
		5935.5	1.8	5349.4	4$^+$			
		9116.8	100	2167.472	2$^+$			
11289.4	(3$^-$)	x						I_γ: 37% γ absolute branching is unobserved. Additional information 92.
		4385.3	3.6	6903.8	2$^-$,3$^-$			
		4465.1	10.7	6824.0	(2$^+$,3$^-$)			
		4714.8	10.7	6574.3	1$^-$			
		5775.6	21	5513.3	3$^-$			
		5939.5	3.6	5349.4	4$^+$			
		6205.3	7.1	5083.6	(2)$^-$			
		6411.8	10.7	4877.0	3$^-$			
		6808.8	10.7	4479.98	4$^-$			
		7352.1	43	3936.5	2$^+$			
		7478.4	3.6	3810.18	3$^-$			
		9120.8	100	2167.472	2$^+$			
11290	(7$^+$ to 11$^+$)	1356	100	9934.0	(9$^+$)			
11298.7	(10$^+$)	1364 *1*	56 *28*	9934.0	(9$^+$)	D+Q		E_γ,I_γ,Mult.: from (^{28}Si,α2pγ). Mult from γ(DCO).
		1959.5 *7*	100 *6*	9339.2	8$^+$	Q		E_γ,I_γ,Mult.: from (^{28}Si,α2pγ). Mult from γ(DCO).
11302.4	5$^-$	4256	1.2	7046	(3$^-$,4$^+$)			
		4627.7	8.1	6674.4	5$^-$			
		4700.5	5.9	6601.59	4$^-$			
		4893.7	1.4	6408.32	6$^+$			
		5092.6	4.9	6209.4	4$^-$			
		5643.3	46	5658.61	5$^-$	M1+E2	−0.19 *6*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		6715.9	100	4585.87	5$^-$	M1(+E2)	−0.03 *6*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		6736.3[@]	<0.2	4565.5	2$^+$			
		6821.8	2.2	4479.98	4$^-$			

$^{38}_{18}Ar_{20}$-59

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11302.4	5⁻	7365.1[@]	<0.2	3936.5	2⁺			
		7491.4[@]	<0.2	3810.18	3⁻			
		7924.6[@]	<0.2	3376.9	0⁺			
		9133.7[@]	<0.2	2167.472	2⁺			
		11300.6[@]	<0.2	0.0	0⁺			
11307.5	5⁻	4632.8	7.4	6674.4	5⁻			
		4705.6	1.9	6601.59	4⁻			
		4898.8[@]	0.7	6408.32	6⁺			
		5097.7	1.9	6209.4	4⁻			
		5648.4	74	5658.61	5⁻	M1+E2	−0.13 *6*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		6721.0	100	4585.87	5⁻	M1(+E2)	−0.03 *6*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		6826.9	0.6	4479.98	4⁻			
		9138.8	1.1	2167.472	2⁺			
11315	1⁻	4829	28	6485.4	(1⁻,2,3⁻)			I_γ: from (α,γ):resonances.
		7378	32	3936.5	2⁺			I_γ: from (α,γ):resonances.
		7937	15	3376.9	0⁺			I_γ: from (α,γ):resonances.
		9146	38	2167.472	2⁺	(E1(+M2))	−0.2 *2*	I_γ: from (α,γ):resonances. Mult.: D(+Q) from γ(θ) in (α,γ):resonances.
		11313	100	0.0	0⁺	(E1)		I_γ: from (α,γ):resonances. Mult.: D(+Q) from γ(θ) in (α,γ):resonances.
11316.7	(3⁻)	x						I_γ: 26% γ absolute branching is unobserved. Additional information 93.
		3864	36	7452	(1⁻ to 4⁺)			
		4026.9	27	7289.6	(3⁻,4⁺)			
		4215.6	27	7100.8	(1⁻ to 4⁺)			
		4270	18	7046	(3⁻,4⁺)			
		4412.6	27	6903.8	2⁻,3⁻			
		4492.4	18	6824.0	(2⁺,3⁻)			
		4714.8	36	6601.59	4⁻			
		5066.4	36	6249.9	2⁺			
		5106.9	45	6209.4	4⁻			
		5263.1	9.1	6053.2	(4⁺)			
		5274.5	100	6041.8	(3⁻,4⁺)			
		5657.6	18	5658.61	5⁻			
		5721.6	36	5594.6	2⁺			
		5966.8	45	5349.4	4⁺			
		6158.9	64	5157.3	2⁺			
		6439.1	36	4877.0	3⁻			
		6730.2	36	4585.87	5⁻			
		6836.1	9.1	4479.98	4⁻			

$^{38}_{18}Ar_{20}$-60

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11316.7	(3$^-$)	7379.4	18	3936.5	2$^+$	
		9148.0	27	2167.472	2$^+$	
11318.7	(2$^+$)	x				I_γ: 26% γ absolute branching is unobserved. Additional information 94.
		3866	3.1	7452	(1$^-$ to 4$^+$)	
		4084.7	2.4	7233.8	(1$^-$ to 4$^+$)	
		4370.5	2.1	6947.9	(2$^+$)	
		4494.4	6.9	6824.0	(2$^+$,3$^-$)	
		4822.6	4.5	6495.8	(2$^-$,3$^-$)	
		4833.0	10.3	6485.4	(1$^-$,2,3$^-$)	
		4979.7	7.9	6338.6	1$^-$,2$^-$,3$^-$	
		5104.5	5.5	6213.8	(2$^+$)	
		5460.8	13.1	5857.5	(2)$^-$	
		5493.4	3.8	5824.9	3$^-$	
		5584.4	2.8	5733.9	1$^-$	
		5723.6	28	5594.6	2$^+$	
		5968.8	1.7	5349.4	4$^+$	
		6160.9	10.0	5157.3	2$^+$	
		6234.6	3.5	5083.6	(2)$^-$	
		6441.1	1.4	4877.0	3$^-$	
		6608.8	24	4709.3	0$^+$	
		6838.1	2.1	4479.98	4$^-$	
		7381.4	14	3936.5	2$^+$	
		7507.7	3.5	3810.18	3$^-$	
		9150.0	100	2167.472	2$^+$	
		11316.9	10.3	0.0	0$^+$	
11328.3	(3$^-$,4$^+$)	x				I_γ: 37% γ absolute branching is unobserved. Additional information 95.
		5118.5	9.4	6209.4	4$^-$	
		5286.1	31	6041.8	(3$^-$,4$^+$)	
		5669.2	9.4	5658.61	5$^-$	
		5978.4	6.2	5349.4	4$^+$	
		6450.7	41	4877.0	3$^-$	
		7517.3	100	3810.18	3$^-$	
		9159.6	3.1	2167.472	2$^+$	
11330.5	(1$^-$ to 4$^+$)	x				I_γ: 24% γ absolute branching is unobserved. Additional information 96.
		4460.3	9.7	6869.9	(2$^-$,3,4$^+$)	
		6172.7	13	5157.3	2$^+$	
		6246.3	9.7	5083.6	(2)$^-$	
		6452.9	58	4877.0	3$^-$	
		6764.4	16	4565.5	2$^+$	

$^{38}_{18}Ar_{20}$-61

Adopted Levels, Gammas (continued)

$\gamma(^{38}Ar)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11330.5	(1⁻ to 4⁺)	7393.2	29	3936.5	2⁺			
		7519.5	9.7	3810.18	3⁻			
		9161.8	100	2167.472	2⁺			
11338.6	(2⁺)	4434.5	1.5	6903.8	2⁻,3⁻			
		4842.5	1.5	6495.8	(2⁻,3⁻)			
		4852.9	1.5	6485.4	(1⁻,2,3⁻)			
		5124.4	1.5	6213.8	(2⁺)			
		5480.7	1.5	5857.5	(2)⁻			
		5513.3	13	5824.9	3⁻			
		5785.9	0.9	5552.21	1⁺,2⁺			
		5824.8	2.9	5513.3	3⁻			
		6180.8	5.9	5157.3	2⁺			
		6254.4	7.4	5083.6	(2)⁻			
		6461.0	10.3	4877.0	3⁻			
		7401.3	1.5	3936.5	2⁺			
		9169.9	100	2167.472	2⁺			
		11336.8	0.4	0.0	0⁺			
11348.9	(2⁻,3,4⁺)	6471.3	23	4877.0	3⁻			
		6868.3	100	4479.98	4⁻			
		7411.6	7.3	3936.5	2⁺			
		9180.2	14.5	2167.472	2⁺			
11350.6	3⁻	3358	2.3	7992	(1⁻,2,3⁻)			
		3898	7.0	7452	(1⁻ to 4⁺)			
		4060.8	5.0	7289.6	(3⁻,4⁺)			
		4158.2	4.0	7192.2	(2⁻,3,4)			
		4249.5	8.7	7100.8	(1⁻ to 4⁺)			
		4304	4.7	7046	(3⁻,4⁺)			
		4446.5	11.3	6903.8	2⁻,3⁻			
		4748.7	7.7	6601.59	4⁻			
		4854.5	19	6495.8	(2⁻,3⁻)			
		5074.1[@]	10.0	6276.1	4⁺			
		5140.8	6.7	6209.4	4⁻			
		5297.0	3.7	6053.2	(4⁺)			
		5525.3	8.0	5824.9	3⁻			
		5836.8	5.7	5513.3	3⁻			
		6000.7	1.3	5349.4	4⁺			
		6266.4	14.3	5083.6	(2)⁻			
		6473.0	100	4877.0	3⁻	M1+E2	−0.16 *10*	Mult.,δ: from $\gamma(\theta$,pol) in (p,γ):resonances.
		6784.4	9.7	4565.5	2⁺			
		6870.0	5.7	4479.98	4⁻			
		7413.3	1.7	3936.5	2⁺			

$^{38}_{18}Ar_{20}$-62

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11350.6	3⁻	7539.6	63	3810.18	3⁻	M1+E2	−0.20 *10*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		7972.8[@]	<0.3	3376.9	0⁺			
		9181.9	50	2167.472	2⁺	E1(+M2)	+0.04 *7*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		11348.8[@]	<0.3	0.0	0⁺			
11354.6	3⁻	4752.7	3.9	6601.59	4⁻			
		4868.9	44	6485.4	(1⁻,2,3⁻)			
		5840.8	19	5513.3	3⁻			
		6477.0	23	4877.0	3⁻			
		6788.4	14	4565.5	2⁺			
		7543.6	18	3810.18	3⁻			
		9185.9	100	2167.472	2⁺			
11367.4	3⁻	x						I_γ: 47% γ absolute branching is unobserved. Additional information 97.
		4133.4	20	7233.8	(1⁻ to 4⁺)			
		4765.5	20	6601.59	4⁻			
		5509.5	20	5857.5	(2)⁻			
		5542.1	13	5824.9	3⁻			
		5853.6	60	5513.3	3⁻			
		6489.8	67	4877.0	3⁻			
		7430.1	40	3936.5	2⁺			
		7556.4	13	3810.18	3⁻			
		9198.7	100	2167.472	2⁺			
11373.7	(1⁻,2,3⁻)	x						I_γ: 21% γ absolute branching is unobserved. Additional information 98.
		4003	10	7370	(1⁺)			
		4469.6	15	6903.8	2⁻,3⁻			
		4549.4	50	6824.0	(2⁺,3⁻)			
		4799.1	15	6574.3	1⁻			
		4888.0	15	6485.4	(1⁻,2,3⁻)			
		5123.4	15	6249.9	2⁺			
		5159.5	10	6213.8	(2⁺)			
		5515.8	10	5857.5	(2)⁻			
		5639.4	10	5733.9	1⁻			

$^{38}_{18}Ar_{20}$-63

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11373.7	(1⁻,2,3⁻)	5778.6	15	5594.6	2⁺			
		6215.9	5	5157.3	2⁺			
		6289.5	5	5083.6	(2)⁻			
		6496.1	100	4877.0	3⁻			
		6807.5	5	4565.5	2⁺			
		7562.7	15	3810.18	3⁻			
		9205.0	100	2167.472	2⁺			
11374	1⁻	11372	100	0.0	0⁺	(E1)		Mult.: D from γ(θ) in (α,γ):resonances.
11379	(4⁺ to 8⁺)	4970	100	6408.32	6⁺			
11379.1	(2⁺)	x						I_γ: 31% γ absolute branching is unobserved. Additional information 99.
		4145.1	30	7233.8	(1⁻ to 4⁺)			
		4893.4	10	6485.4	(1⁻,2,3⁻)			
		5102.6	30	6276.1	4⁺			
		5128.8	10	6249.9	2⁺			
		5164.9	100	6213.8	(2⁺)			
		5336.9	70	6041.8	(3⁻,4⁺)			
		5521.2	20	5857.5	(2)⁻			
		5553.8	60	5824.9	3⁻			
		5784.0	20	5594.6	2⁺			
		5826.4	40	5552.21	1⁺,2⁺			
		5865.3	20	5513.3	3⁻			
		6029.2	10	5349.4	4⁺			
		6294.9	20	5083.6	(2)⁻			
		6812.9	40	4565.5	2⁺			
		6898.4	90	4479.98	4⁻			
		7441.8	60	3936.5	2⁺			
		8001.3	10	3376.9	0⁺			
		9210.4	50	2167.472	2⁺			
11393.0	3⁻	x						I_γ: 37% γ absolute branching is unobserved. Additional information 100.
		4103.2	2.7	7289.6	(3⁻,4⁺)			
		4791.1	5.4	6601.59	4⁻			
		5879.2	5.4	5513.3	3⁻			
		6235.2	2.7	5157.3	2⁺			
		6308.8	2.7	5083.6	(2)⁻			
		6515.4	38	4877.0	3⁻			
		6912.3	8.1	4479.98	4⁻			
		7582.0	5.4	3810.18	3⁻			
		9224.3	100	2167.472	2⁺			
11399.5	(3⁻)	9230.8	100	2167.472	2⁺	D+Q	+0.23 *15*	Mult.,δ: from γ(θ) in (α,γ):resonances.

$^{38}_{18}Ar_{20}$-64

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11401.5	(1⁻,2⁺)	x				I_γ: 38% γ absolute branching is unobserved. Additional information 101.
		6243.6	18	5157.3	2⁺	
		6691.6	21	4709.3	0⁺	
		6835.3	100	4565.5	2⁺	
		7464.2	18	3936.5	2⁺	
		7590.5	18	3810.18	3⁻	
		11399.7	36	0.0	0⁺	
11409.3	(2)	x				I_γ: 7% γ absolute branching is unobserved. Additional information 102.
		4461.1	1.6	6947.9	(2⁺)	
		4636.3	4.4	6772.7	1⁻	
		4834.7	2.4	6574.3	1⁻	
		4923.6	8.0	6485.4	(1⁻,2,3⁻)	
		5055.4	8.4	6353.5	1⁻	
		5132.8	12	6276.1	4⁺	
		5159.0	2.8	6249.9	2⁺	
		5199.5	2.4	6209.4	4⁻	
		5551.4	4.8	5857.5	(2)⁻	
		5584.0	7.2	5824.9	3⁻	
		5674.9	2.8	5733.9	1⁻	
		5814.2	20	5594.6	2⁺	
		5856.6	20	5552.21	1⁺,2⁺	
		5895.5	2.8	5513.3	3⁻	
		6059.4	3.2	5349.4	4⁺	
		6251.4	24	5157.3	2⁺	
		6325.1	24	5083.6	(2)⁻	
		6531.7	3.2	4877.0	3⁻	
		6843.1	100	4565.5	2⁺	
		7472.0	24	3936.5	2⁺	
		7598.3	8.0	3810.18	3⁻	
		9240.6	84	2167.472	2⁺	
		11407.5	0.8	0.0	0⁺	
11423.9	(3⁻)	x				I_γ: 9% γ absolute branching is unobserved. Additional information 103.
		3992.7	4.3	7431.0	(2⁻,3,4⁺)	
		4189.9	3.0	7233.8	(1⁻ to 4⁺)	
		4599.6	12.8	6824.0	(2⁺,3⁻)	
		4802.0	2.1	6621.6	(1⁻,2,3⁻)	
		4849.3	2.1	6574.3	1⁻	
		4927.8	6.4	6495.8	(2⁻,3⁻)	
		5070.0	2.1	6353.5	1⁻	

$^{38}_{18}Ar_{20}$-65

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	Comments
11423.9	(3$^-$)	5209.7	6.4	6213.8	(2$^+$)		
		5598.6	4.3	5824.9	3$^-$		
		5828.8	2.1	5594.6	2$^+$		
		5871.2	13	5552.21	1$^+$,2$^+$		
		5910.1	17	5513.3	3$^-$		
		6266.0	2.1	5157.3	2$^+$		
		6546.3	0.6	4877.0	3$^-$		
		6857.7	1.5	4565.5	2$^+$		
		6943.2	2.1	4479.98	4$^-$		
		7486.6	8.5	3936.5	2$^+$		
		7612.9	4.3	3810.18	3$^-$		
		9255.2	100	2167.472	2$^+$		
11428	(4$^+$ to 8$^+$)	5019	100	6408.32	6$^+$		
11428.9	(3,4$^+$)	x					I_γ: 23% γ absolute branching is unobserved. Additional information 104.
		3746	17	7683	(3$^-$,4$^+$)		
		4139.1	11	7289.6	(3$^-$,4$^+$)		
		4194.9	5.6	7233.8	(1$^-$ to 4$^+$)		
		4524.8	11	6903.8	2$^-$,3$^-$		
		4604.6	22	6824.0	(2$^+$,3$^-$)		
		5152.4	78	6276.1	4$^+$		
		5375.3	39	6053.2	(4$^+$)		
		5603.6	22	5824.9	3$^-$		
		5876.2	5.6	5552.21	1$^+$,2$^+$		
		5915.1	5.6	5513.3	3$^-$		
		6079.0	17	5349.4	4$^+$		
		6271.0	5.6	5157.3	2$^+$		
		6344.7	5.6	5083.6	(2)$^-$		
		6551.3	5.6	4877.0	3$^-$		
		6862.7	22	4565.5	2$^+$		
		6948.2	5.6	4479.98	4$^-$		
		7491.6	17	3936.5	2$^+$		
		7617.9	100	3810.18	3$^-$		
		9260.2	33	2167.472	2$^+$		
11431.9	1$^-$	x					I_γ: 56% γ absolute branching is unobserved in (p,γ):resonances. Additional information 105.
		6554.3	52	4877.0	3$^-$		I_γ: from (α,γ):resonances only.
		6865.7	33	4565.5	2$^+$		
		8054.1	11	3376.9	0$^+$		
		9263.2	19	2167.472	2$^+$		
		11430.1	100	0.0	0$^+$	(E1)	Mult.: D from γ(θ) in (α,γ):resonances.

$^{38}_{18}Ar_{20}$-66

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.#	δ#	Comments
11435.9	(2$^+$,3$^-$)	x						I_γ: 22% γ absolute branching is unobserved. Additional information 106.
		3542.3	3.6	7893.4	(1$^+$,2$^+$)			
		3753	14	7683	(3$^-$,4$^+$)			
		3984	100	7452	(1$^-$ to 4$^+$)			
		4102	36	7334	(1$^-$ to 4$^+$)			
		4200	9.1	7236	(2$^+$)			
		4487.7	20	6947.9	(2$^+$)			
		4584	36	6852	(1,2$^+$)			
		4611.6	3.6	6824.0	(2$^+$,3$^-$)			
		4662.9	18	6772.7	1$^-$			
		4814.0	73	6621.6	(1$^-$,2,3$^-$)			
		4861.3	18	6574.3	1$^-$			
		4939.8	33	6495.8	(2$^-$,3$^-$)			
		5082.0	6.4	6353.5	1$^-$			
		5096.9	6.4	6338.6	1$^-$,2$^-$,3$^-$			
		5159.4	10.0	6276.1	4$^+$			
		5185.6	18	6249.9	2$^+$			
		5221.7	6.4	6213.8	(2$^+$)			
		5578.0	6.4	5857.5	(2)$^-$			
		5610.6	5.5	5824.9	3$^-$			
		5701.5	18	5733.9	1$^-$			
		5883.2	27	5552.21	1$^+$,2$^+$			
		5922.1	7.3	5513.3	3$^-$			
		6351.7	18	5083.6	(2)$^-$			
		6558.2 *3*	6	4877.0	3$^-$			
		6726.0	2.7	4709.3	0$^+$			
		6849.4	15	4585.87	5$^-$			
		6869.7	3.6	4565.5	2$^+$			
		7498.6	18	3936.5	2$^+$			
		7624.9	82	3810.18	3$^-$			
		9267.2	45	2167.472	2$^+$			
		11434.1	7.3	0.0	0$^+$			
11442.9	3$^-$	4841.0	33	6601.59	4$^-$			I_γ: from (α,γ):resonances.
		6962.2	10	4479.98	4$^-$			I_γ: from (α,γ):resonances.
		9274.2	100	2167.472	2$^+$	(E1(+M2))	+0.02 *3*	I_γ: from (α,γ):resonances. Mult.,δ: D(+Q) from γ(θ) in (α,γ):resonances.
11443.6	(2$^-$,3)	x						I_γ: 21% γ absolute branching is unobserved. Additional information 107.
		4109	39	7334	(1$^-$ to 4$^+$)			
		4153.8	12	7289.6	(3$^-$,4$^+$)			
		4841.7	9.4	6601.59	4$^-$			

$^{38}_{18}Ar_{20}$-67

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11443.6	(2⁻,3)	4957.9	10.0	6485.4	(1⁻,2,3⁻)	
		5229.4	7.8	6213.8	(2⁺)	
		5390.0	8.9	6053.2	(4⁺)	
		5401.4	14	6041.8	(3⁻,4⁺)	
		5848.5	28	5594.6	2⁺	
		6566.0	56	4877.0	3⁻	
		6877.4	61	4565.5	2⁺	
		7506.3	56	3936.5	2⁺	
		7632.6	39	3810.18	3⁻	
		9274.9	100	2167.472	2⁺	
11452		2253	100	9199	(4⁻ to 8⁻)	
11461.3	(1⁻,2⁺)	x				I_γ: 38% γ absolute branching is unobserved. Additional information 108.
		3567.7	63	7893.4	(1⁺,2⁺)	
		4227.2	88	7233.8	(1⁻ to 4⁺)	
		4360.2	25	7100.8	(1⁻ to 4⁺)	
		4779.4	100	6681.6	(0,1,2)	
		5603.4	75	5857.5	(2)⁻	
		5726.9	63	5733.9	1⁻	
		5866.2	25	5594.6	2⁺	
		5908.6	50	5552.21	1⁺,2⁺	
		6303.4	100	5157.3	2⁺	
		6895.1	38	4565.5	2⁺	
		7650.3	38	3810.18	3⁻	
		8083.5	25	3376.9	0⁺	
		9292.6	25	2167.472	2⁺	
		11459.4	63	0.0	0⁺	
11471.2	(1⁻,2⁺)	3577.6	4.2	7893.4	(1⁺,2⁺)	
		4646.9	2.8	6824.0	(2⁺,3⁻)	
		4849.3	2.8	6621.6	(1⁻,2,3⁻)	
		4896.6	5.6	6574.3	1⁻	
		5117.3	25	6353.5	1⁻	
		5132.2	2.5	6338.6	1⁻,2⁻,3⁻	
		5257.0	5.6	6213.8	(2⁺)	
		5613.3	11.1	5857.5	(2)⁻	
		5876.1	3.9	5594.6	2⁺	
		6387.0	8.3	5083.6	(2)⁻	
		6761.3	2.8	4709.3	0⁺	
		6905.0	100	4565.5	2⁺	
		7533.9	5.6	3936.5	2⁺	
		7660.2	5.6	3810.18	3⁻	
		8093.4	17	3376.9	0⁺	

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Comments
11471.2	$(1^-,2^+)$	9302.5	8.3	2167.472	2^+	
		11469.3	78	0.0	0^+	
11478.9	(3^-)	x				I_γ: 48% γ absolute branching is unobserved. Additional information 109.
		4109	29	7370	(1^+)	
		4654.6	71	6824.0	$(2^+,3^-)$	
		4877.0	57	6601.59	4^-	
		4982.7	14	6495.8	$(2^-,3^-)$	
		5202.4	14	6276.1	4^+	
		5264.7	57	6213.8	(2^+)	
		5269.1	29	6209.4	4^-	
		5425.3	29	6053.2	(4^+)	
		5436.7	86	6041.8	$(3^-,4^+)$	
		5621.0	14	5857.5	$(2)^-$	
		5653.5	14	5824.9	3^-	
		5819.8	14	5658.61	5^-	
		5883.8	100	5594.6	2^+	
		5965.1	14	5513.3	3^-	
		6321.0	71	5157.3	2^+	
		6394.7	14	5083.6	$(2)^-$	
		6601.3	29	4877.0	3^-	
		6912.7	14	4565.5	2^+	
		7541.6	14	3936.5	2^+	
		9310.2	57	2167.472	2^+	
11484	$(7^-$ to $11^-)$	1310	100	10174.29	9^-	
11495	$(5^+$ to $9^+)$	3418	100	8077.20	7^+	
11501.3	(2^+)	4070.1	4.6	7431.0	$(2^-,3,4^+)$	
		4655	3.6	6852	$(1,2^+)$	
		4677.0	9.1	6824.0	$(2^+,3^-)$	
		4819.4	27	6681.6	(0,1,2)	
		5291.5	0.9	6209.4	4^-	
		5526.1	2.7	5974.8	$(0^+$ to $3^-)$	
		5766.9	2.7	5733.9	1^-	
		6343.4	41	5157.3	2^+	
		6417.1	27	5083.6	$(2)^-$	
		6791.3	59	4709.3	0^+	
		6935.1	100	4565.5	2^+	
		7564.0	36	3936.5	2^+	
		8123.5	41	3376.9	0^+	
		11499.4	100	0.0	0^+	
11511.7	(2)	x				I_γ: 30% γ absolute branching is unobserved. Additional information 110.

$^{38}_{18}Ar_{20}$-69

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11511.7	(2)	4146	8	7365		
		4177	8	7334	(1^- to 4^+)	
		4221.8	12	7289.6	(3^-,4^+)	
		4319.2	4	7192.2	(2^-,3,4)	
		5025.9	4	6485.4	(1^-,2,3^-)	
		5235.2	4	6276.1	4^+	
		5301.9	4	6209.4	4^-	
		5458.1	4	6053.2	(4^+)	
		5469.5	8	6041.8	(3^-,4^+)	
		5653.7	16	5857.5	$(2)^-$	
		5997.9	8	5513.3	3^-	
		6161.8	4	5349.4	4^+	
		6353.8	32	5157.3	2^+	
		6427.5	20	5083.6	$(2)^-$	
		6945.5	4	4565.5	2^+	
		7031.0	8	4479.98	4^-	
		7574.4	16	3936.5	2^+	
		7700.7	8	3810.18	3^-	
		9343.0	100	2167.472	2^+	
		11509.8	8	0.0	0^+	
11514.5	1^-	x				I_γ: 19% γ absolute branching is unobserved. Additional information 111.
		6356.6	3.3	5157.3	2^+	
		6430.3	3.3	5083.6	$(2)^-$	
		6948.3	4.9	4565.5	2^+	
		9345.8	21	2167.472	2^+	
		11512.6	100	0.0	0^+	
11519.7	(1^-,2^+,3^-)	x				I_γ: 50% γ absolute branching is unobserved. Additional information 112.
		4649.5	25	6869.9	(2^-,3,4^+)	
		4746.7	25	6772.7	1^-	
		4897.8	42	6621.6	(1^-,2,3^-)	
		5023.5	17	6495.8	(2^-,3^-)	
		5305.5	100	6213.8	(2^+)	
		6361.8	67	5157.3	2^+	
		6435.5	25	5083.6	$(2)^-$	
		6953.5	33	4565.5	2^+	
		7582.4	25	3936.5	2^+	
		7708.7	50	3810.18	3^-	
		9351.0	8.3	2167.472	2^+	
11527.6	(1,2^+)	x				I_γ: 66% γ absolute branching is unobserved. Additional information 113.

$^{38}_{18}Ar_{20}$-70

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11527.6	(1,2$^+$)	5313.4	18	6213.8	(2$^+$)			
		5552.4	36	5974.8	(0$^+$ to 3$^-$)			
		6817.6	18	4709.3	0$^+$			
		7590.3	91	3936.5	2$^+$			
		8149.8	45	3376.9	0$^+$			
		9358.9	100	2167.472	2$^+$			
11530.2	(1$^-$,2$^+$)	x						I_γ: 19% γ absolute branching is unobserved. Additional information 114.
		6820.2	10.3	4709.3	0$^+$			
		7592.9	8.6	3936.5	2$^+$			
		8152.4	21	3376.9	0$^+$			
		11528.3	100	0.0	0$^+$			
11540.2	1$^-$	x						I_γ: 22% γ absolute branching is unobserved. Additional information 115.
		5186.3	5.1	6353.5	1$^-$			
		7602.9	26	3936.5	2$^+$			
		8162.4	5.1	3376.9	0$^+$			
		9371.5	64	2167.472	2$^+$			
		11538.3	100	0.0	0$^+$			
11543	(5$^+$ to 9$^+$)	3466	100	8077.20	7$^+$			
11545.3	(1$^-$,2)	x						I_γ: 42% γ absolute branching is unobserved. Additional information 116.
		5687.3	11	5857.5	(2)$^-$			
		5810.9	13	5733.9	1$^-$			
		6031.5	7.9	5513.3	3$^-$			
		9376.6	100	2167.472	2$^+$			
		11543.4	21	0.0	0$^+$			
11547	(7$^-$ to 11$^-$)	1373	100	10174.29	9$^-$			
11549.1	(10$^-$)	1374.7 *4*	100 *3*	10174.29	9$^-$	D+Q	+1.3 *8*	E_γ,I_γ: from (^{28}Si,α2pγ). Mult.,δ: from γ(DCO) in (^{28}Si,α2pγ), ΔJ=1. Original value of δ: +0.5<δ<+2.2.
		1524.4 *4*	41 *3*	10024.9	(8$^-$)	Q		E_γ,I_γ,Mult.: from (^{28}Si,α2pγ). Mult.: from γ(DCO) in (^{28}Si,α2pγ), ΔJ=2.
11552.6	(1)$^-$	x						I_γ: 21% γ absolute branching is unobserved. Additional information 117.
		4728.3	10.0	6824.0	(2$^+$,3$^-$)			
		4779.6	2.5	6772.7	1$^-$			
		4930.7	5.0	6621.6	(1$^-$,2,3$^-$)			
		5056.4	7.5	6495.8	(2$^-$,3$^-$)			
		5577.4	10.0	5974.8	(0$^+$ to 3$^-$)			
		5694.6	2.5	5857.5	(2)$^-$			

$^{38}_{18}Ar_{20}$-71

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11552.6	$(1)^-$	5727.2	2.5	5824.9	3^-	
		5957.5	12.5	5594.6	2^+	
		6675.0	2.5	4877.0	3^-	
		6986.4	15	4565.5	2^+	
		7741.6	2.5	3810.18	3^-	
		8174.8	5.0	3376.9	0^+	
		9383.9	20	2167.472	2^+	
		11550.7	100	0.0	0^+	
11569.2	$(1^-,2,3^-)$	x				I_γ: 14% γ absolute branching is unobserved. Additional information 118.
		4335.1	1.1	7233.8	$(1^-$ to $4^+)$	
		4621.0	1.1	6947.9	(2^+)	
		4665.1	1.6	6903.8	$2^-,3^-$	
		4994.5	1.6	6574.3	1^-	
		5834.8	1.6	5733.9	1^-	
		5974.1	3.1	5594.6	2^+	
		6055.4	3.1	5513.3	3^-	
		6411.3	2.0	5157.3	2^+	
		6485.0	1.6	5083.6	$(2)^-$	
		6691.6	1.7	4877.0	3^-	
		7003.0	6.3	4565.5	2^+	
		7631.9	4.7	3936.5	2^+	
		7758.2	4.7	3810.18	3^-	
		9400.5	100	2167.472	2^+	
11595	$(4^+$ to $8^+)$	5186	100	6408.32	6^+	
11597.9	4^+	x				I_γ: 55% γ absolute branching is unobserved. Additional information 119.
		4693.8	12	6903.8	$2^-,3^-$	
		5555.7	41	6041.8	$(3^-,4^+)$	
		5772.5	24	5824.9	3^-	
		5938.8	47	5658.61	5^-	
		6720.3	100	4877.0	3^-	
		7117.2	35	4479.98	4^-	
		9429.2	5.9	2167.472	2^+	
11599.6	$(1,2^+)$	x				I_γ: 31% γ absolute branching is unobserved. Additional information 120.
		4651.4	8.8	6947.9	(2^+)	
		4747	5.9	6852	$(1,2^+)$	
		4775.3	5.9	6824.0	$(2^+,3^-)$	
		5349.3	8.8	6249.9	2^+	
		5741.6	5.9	5857.5	$(2)^-$	
		7033.4	53	4565.5	2^+	

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Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
11599.6	(1,2$^+$)	7662.3	12	3936.5	2$^+$		
		9430.9	100	2167.472	2$^+$		
		11597.7	2.9	0.0	0$^+$		
11605.8	(1,2$^+$)	x					I_γ: 39% γ absolute branching is unobserved. Additional information 121.
		4832.8	16	6772.7	1$^-$		
		5630.6	58	5974.8	(0$^+$ to 3$^-$)		
		6447.9	74	5157.3	2$^+$		
		7039.6	47	4565.5	2$^+$		
		9437.1	100	2167.472	2$^+$		
		11603.9	26	0.0	0$^+$		
11608	(5$^+$ to 9$^+$)	3531	100	8077.20	7$^+$		
11614.7	11$^-$	1440.3 *2*	100	10174.29	9$^-$	E2	B(E2)(W.u.)=2.5 *+19−7* E_γ: weighted average of 1440.9 *4* from (^{28}Si,α2pγ), 1440.2 *2* from (^{16}O,2pγ), and 1440.31 *25* from (^{14}N,n2pγ). Mult.: from γ(θ,pol) in (^{16}O,2pγ), γ(DCO) in (^{28}Si,α2pγ), also supported by γ(θ) in (^{14}N,n2pγ).
11620	(7$^+$ to 11$^+$)	1686	100	9934.0	(9$^+$)		
11630		2431	100	9199	(4$^-$ to 8$^-$)		
11650.9	(9$^-$)	2301 *2*	100	9349.6	(7$^-$)	Q	Mult.: from γ(DCO) in (^{28}Si,α2pγ) for a doublet structure.
11652.1	(3,4$^+$)	x					I_γ: 40% γ absolute branching is unobserved. Additional information 122.
		4418.0	18	7233.8	(1$^-$ to 4$^+$)		
		4551.0	9.1	7100.8	(1$^-$ to 4$^+$)		
		4781.9	36	6869.9	(2$^-$,3,4$^+$)		
		5155.9	18	6495.8	(2$^-$,3$^-$)		
		5313.1	27	6338.6	1$^-$,2$^-$,3$^-$		
		5442.3	27	6209.4	4$^-$		
		5794.1	27	5857.5	(2)$^-$		
		6057.0	27	5594.6	2$^+$		
		6138.3	9.1	5513.3	3$^-$		
		6302.1	9.1	5349.4	4$^+$		
		6774.5	100	4877.0	3$^-$		
		7085.9	18	4565.5	2$^+$		
		7171.4	18	4479.98	4$^-$		
		7714.8	73	3936.5	2$^+$		
		7841.1	55	3810.18	3$^-$		
		9483.4	73	2167.472	2$^+$		
11672.3	(3)	x					I_γ: 11% γ absolute branching is unobserved. Additional information 123.
		3989	5.3	7683	(3$^-$,4$^+$)		

$^{38}_{18}Ar_{20}$-73

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11672.3	(3)	4382.4	7.7	7289.6	$(3^-,4^+)$	
		4479.8	5.3	7192.2	$(2^-,3,4)$	
		4571.2	5.3	7100.8	$(1^-$ to $4^+)$	
		4626@		7046	$(3^-,4^+)$	
		4848.0	18	6824.0	$(2^+,3^-)$	
		5050.3	7.7	6621.6	$(1^-,2,3^-)$	
		5070.3	18	6601.59	4^-	
		5176.1	29	6495.8	$(2^-,3^-)$	
		5186.5	8.8	6485.4	$(1^-,2,3^-)$	
		5333.3	12	6338.6	$1^-,2^-,3^-$	
		5395.8	24	6276.1	4^+	
		5422.0	7.1	6249.9	2^+	
		5458.1	47	6213.8	(2^+)	
		5618.7	47	6053.2	(4^+)	
		5630.1	11	6041.8	$(3^-,4^+)$	
		5814.3	5.9	5857.5	$(2)^-$	
		5846.9	8.2	5824.9	3^-	
		6158.5@	6.5	5513.3	3^-	
		6322.3@	5.3	5349.4	4^+	
		6514.4	8.8	5157.3	2^+	
		6588.1	59	5083.6	$(2)^-$	
		6794.6	14	4877.0	3^-	
		7106.1	7.7	4565.5	2^+	
		7191.6	18	4479.98	4^-	
		7735.0	18	3936.5	2^+	
		7861.2	100	3810.18	3^-	
		9503.6	18	2167.472	2^+	
11682.7	(4^+)	x				I_γ: 28% γ absolute branching is unobserved. Additional information 124.
		4394.1	12	7288.32	6^+	
		5406.2	12	6276.1	4^+	
		5432.4	20	6249.9	2^+	
		5629.1	8.0	6053.2	(4^+)	
		5640.5	8.0	6041.8	$(3^-,4^+)$	
		5857.3	44	5824.9	3^-	
		6168.9	8.0	5513.3	3^-	
		6332.7	100	5349.4	4^+	
		6805.0	12	4877.0	3^-	
		7096.1	12	4585.87	5^-	
		7116.5	8.0	4565.5	2^+	
		7871.6	44	3810.18	3^-	

$^{38}_{18}Ar_{20}$-74

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Comments
11703.5	(3⁻,4⁺)	x				I_γ: 36% γ absolute branching is unobserved. Additional information 125.
		3711	20	7992	(1⁻,2,3⁻)	
		4020	30	7683	(3⁻,4⁺)	
		4164	10	7539	(3,4,5)	
		4469.4	30	7233.8	(1⁻ to 4⁺)	
		4602.4	30	7100.8	(1⁻ to 4⁺)	
		4799.4	40	6903.8	2⁻,3⁻	
		4879.2	20	6824.0	(2⁺,3⁻)	
		5081.5	10	6621.6	(1⁻,2,3⁻)	
		5101.5	10	6601.59	4⁻	
		5217.7	10	6485.4	(1⁻,2,3⁻)	
		5427.0	10	6276.1	4⁺	
		5489.3	10	6213.8	(2⁺)	
		5649.8	80	6053.2	(4⁺)	
		6189.7	10	5513.3	3⁻	
		6353.5	50	5349.4	4⁺	
		6825.8	80	4877.0	3⁻	
		7116.9	20	4585.87	5⁻	
		7137.3	20	4565.5	2⁺	
		7222.8	30	4479.98	4⁻	
		7766.1	100	3936.5	2⁺	
		7892.4	20	3810.18	3⁻	
11716.6	(2⁺)	x				I_γ: 29% γ absolute branching is unobserved. Additional information 126.
		5094.6	6.9	6621.6	(1⁻,2,3⁻)	
		5230.8	3.5	6485.4	(1⁻,2,3⁻)	
		5377.6	3.5	6338.6	1⁻,2⁻,3⁻	
		5502.4	14	6213.8	(2⁺)	
		5506.8	3.5	6209.4	4⁻	
		5674.3	3.5	6041.8	(3⁻,4⁺)	
		5741.3	3.5	5974.8	(0⁺ to 3⁻)	
		5982.2	10	5733.9	1⁻	
		6558.7	21	5157.3	2⁺	
		6838.9	28	4877.0	3⁻	
		7006.6	3.5	4709.3	0⁺	
		7779.2	21	3936.5	2⁺	
		7905.5	3.5	3810.18	3⁻	
		8338.7	6.9	3376.9	0⁺	
		9547.8	14	2167.472	2⁺	
		11714.7	100	0.0	0⁺	

$^{38}_{18}Ar_{20}$-75

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11731.2	(4$^+$)	x				I_γ: 33% γ absolute branching is unobserved. Additional information 127.
		4827.1	33	6903.8	2$^-$,3$^-$	
		4906.9	53	6824.0	(2$^+$,3$^-$)	
		5454.7	13	6276.1	4$^+$	
		5517.0	20	6213.8	(2$^+$)	
		5677.5	100	6053.2	(4$^+$)	
		5688.9	20	6041.8	(3$^-$,4$^+$)	
		5905.8	13	5824.9	3$^-$	
		6072.1	27	5658.61	5$^-$	
		6136.1	33	5594.6	2$^+$	
		6381.2	13	5349.4	4$^+$	
		6853.5	13	4877.0	3$^-$	
		7144.6	6.7	4585.87	5$^-$	
		7165.0	73	4565.5	2$^+$	
		7250.5	6.7	4479.98	4$^-$	
		7793.8	6.7	3936.5	2$^+$	
		7920.1	6.7	3810.18	3$^-$	
		9562.4	6.7	2167.472	2$^+$	
11755.6	(3$^-$,4$^+$)	x				I_γ: 47% γ absolute branching is unobserved. Additional information 128.
		5541.4	14	6213.8	(2$^+$)	
		6160.5	14	5594.6	2$^+$	
		6241.7	50	5513.3	3$^-$	
		7189.4	36	4565.5	2$^+$	
		7274.9	86	4479.98	4$^-$	
		7818.2	71	3936.5	2$^+$	
		7944.5	7.1	3810.18	3$^-$	
		9586.8	100	2167.472	2$^+$	
11775.0	4$^+$	x				I_γ: 39% γ absolute branching is unobserved. Additional information 129.
		4092	67	7683	(3$^-$,4$^+$)	
		4236	47	7539	(3,4,5)	
		4486.4	100	7288.32	6$^+$	
		5498.5	53	6276.1	4$^+$	
		5721.3	73	6053.2	(4$^+$)	
		6261.1	13	5513.3	3$^-$	
		7188.4	27	4585.87	5$^-$	
		7963.9	20	3810.18	3$^-$	
		9606.2	6.7	2167.472	2$^+$	
11780.7	(1,2,3)$^-$	x				I_γ: 29% γ absolute branching is unobserved. Additional information 130.

$^{38}_{18}Ar_{20}$-76

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11780.7	$(1,2,3)^-$	4492	42	7288.32	6^+	
		5284.5	11	6495.8	$(2^-,3^-)$	
		5426.8	16	6353.5	1^-	
		5955.3	21	5824.9	3^-	
		6185.6	16	5594.6	2^+	
		6266.8	32	5513.3	3^-	
		6622.8	100	5157.3	2^+	
		7843.3	53	3936.5	2^+	
		7969.6	11	3810.18	3^-	
		9611.9	74	2167.472	2^+	
11790.5	(2^+)	x				I_γ: 51% γ absolute branching is unobserved. Additional information 131.
		4886.4	20	6903.8	$2^-,3^-$	
		5294.3	20	6495.8	$(2^-,3^-)$	
		5580.7	60	6209.4	4^-	
		5736.8	20	6053.2	(4^+)	
		5748.2	30	6041.8	$(3^-,4^+)$	
		5932.5	30	5857.5	$(2)^-$	
		6195.4	70	5594.6	2^+	
		6276.6	100	5513.3	3^-	
		7080.5	10	4709.3	0^+	
		7224.3	50	4565.5	2^+	
		7853.1	10	3936.5	2^+	
		7979.4	50	3810.18	3^-	
		9621.7	10	2167.472	2^+	
		11788.5	10	0.0	0^+	
11794.5	$(1^-,2^+,3^-,4^+)$	x				I_γ: 53% γ absolute branching is unobserved. Additional information 132.
		6280.6	6.8	5513.3	3^-	
		9625.7	100	2167.472	2^+	
11797.9	$(1^-,2,3,4^+)$	x				I_γ: 43% γ absolute branching is unobserved. Additional information 133.
		5301.7	36	6495.8	$(2^-,3^-)$	
		5583.7	54	6213.8	(2^+)	
		5755.6	62	6041.8	$(3^-,4^+)$	
		5939.9	27	5857.5	$(2)^-$	
		6202.8	46	5594.6	2^+	
		6284.0	100	5513.3	3^-	
		7231.7	81	4565.5	2^+	
		7860.5	18	3936.5	2^+	
		7986.8	73	3810.18	3^-	
		9629.1	18	2167.472	2^+	

$^{38}_{18}Ar_{20}$-77

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Comments
11800.1	(1,2$^+$)	x				I_γ: 19% γ absolute branching is unobserved. Additional information 134.
		5942.1	14	5857.5	(2)$^-$	
		6065.7	12	5733.9	1$^-$	
		6715.9	9.3	5083.6	(2)$^-$	
		7233.9	9.3	4565.5	2$^+$	
		9631.3	44	2167.472	2$^+$	
		11798.1	100	0.0	0$^+$	
11805.9	3$^-$	x				I_γ: 39% γ absolute branching is unobserved. Additional information 135.
		4374.6	4.8	7431.0	(2$^-$,3,4$^+$)	
		5555.6	13	6249.9	2$^+$	
		5752.2	3.9	6053.2	(4$^+$)	
		6210.8	17	5594.6	2$^+$	
		6455.9	10	5349.4	4$^+$	
		6648.0	5.2	5157.3	2$^+$	
		6721.7	13	5083.6	(2)$^-$	
		6928.2	13	4877.0	3$^-$	
		7239.7	100	4565.5	2$^+$	
		7325.2	8.7	4479.98	4$^-$	
		7868.5	30	3936.5	2$^+$	
		7994.8	11	3810.18	3$^-$	
		9637.1	35	2167.472	2$^+$	
11812.2	(1,2$^+$)	x				I_γ: 38% γ absolute branching is unobserved. Additional information 136.
		9643.4	3.3	2167.472	2$^+$	
		11810.2	100	0.0	0$^+$	
11823.1	(3$^-$,4$^+$)	x				I_γ: 72% γ absolute branching is unobserved. Additional information 137.
		5221.1	100	6601.59	4$^-$	
		5546.6	17	6276.1	4$^+$	
		5572.8	42	6249.9	2$^+$	
		5613.3	25	6209.4	4$^-$	
		5997.7	17	5824.9	3$^-$	
		6164.0	8.3	5658.61	5$^-$	
		7236.5	25	4585.87	5$^-$	
11832.0	3$^-$	x				I_γ: 61% γ absolute branching is unobserved. Additional information 138.
		6954.3	36	4877.0	3$^-$	
		7245.4	43	4585.87	5$^-$	
		7265.8	29	4565.5	2$^+$	
		7894.6	50	3936.5	2$^+$	

$^{38}_{18}Ar_{20}$-78

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11832.0	3⁻	8020.9	21	3810.18	3⁻			
		9663.2	100	2167.472	2⁺			
11873.8	(3,4⁺)	x						I_γ: 39% γ absolute branching is unobserved. Additional information 139.
		5597.3	13	6276.1	4⁺			
		5820.1	25	6053.2	(4⁺)			
		6015.8	19	5857.5	(2)⁻			
		6715.9	13	5157.3	2⁺			
		6789.5	44	5083.6	(2)⁻			
		6996.1	69	4877.0	3⁻			
		7307.5	31	4565.5	2⁺			
		7393.0	56	4479.98	4⁻			
		7936.4	13	3936.5	2⁺			
		9705.0	100	2167.472	2⁺			
11887.8	(1,2,3)⁻	x						I_γ: 40% γ absolute branching is unobserved. Additional information 140.
		6292.6	8.3	5594.6	2⁺			
		6335.0	8.3	5552.21	1⁺,2⁺			
		6729.9	17	5157.3	2⁺			
		6803.5	29	5083.6	(2)⁻			
		7950.4	88	3936.5	2⁺			
		9719.0	100	2167.472	2⁺			
11905.7	(3⁻,4,5⁻)	x						I_γ: 67% γ absolute branching is unobserved. Additional information 141.
		5303.7	56	6601.59	4⁻			
		6246.5	89	5658.61	5⁻			
		7028.0	89	4877.0	3⁻			
		7319.1	100	4585.87	5⁻			
		8094.6	33	3810.18	3⁻			
11915.4	(10⁺)	2378 *1*	18 *5*	9537.0	8⁽⁺⁾			E_γ,I_γ: from (^{28}Si,α2pγ).
		2576.2 *8*	100 *5*	9339.2	8⁺	Q		E_γ,I_γ: from (^{28}Si,α2pγ). Mult.: from γ(DCO) in (^{28}Si,α2pγ).
11928.0	4⁻	2930	1.5 *6*	8998	(4⁺,5,6⁻)			
		3128	4.9 *3*	8800	(2⁻ to 6⁻)			
		4431	3.4 *6*	7497	(3,4,5⁻)			
		4496.7	0.6 *3*	7431.0	(2⁻,3,4⁺)			
		4578	1.5 *6*	7350	(3⁻,4⁺)			
		4638.1	1.5 *6*	7289.6	(3⁻,4⁺)			
		5023.8	2.8 *6*	6903.8	2⁻,3⁻			
		5057.7	1.5 *9*	6869.9	(2⁻,3,4⁺)			
		5326.0	100.0 *18*	6601.59	4⁻	M1(+E2)	+0.05 *8*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.

$^{38}_{18}Ar_{20}$-79

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	δ[#]	Comments
11928.0	4⁻	5651.4	3.4 *9*	6276.1	4⁺			
		5718.1	67.9 *15*	6209.4	4⁻	M1(+E2)	−0.02 *8*	Mult.,δ: from γ(θ,pol) in (p,γ):resonances.
		5874.3	1.5 *6*	6053.2	(4⁺)			
		6102.6	1.8 *9*	5824.9	3⁻			
		6268.8	16.2 *12*	5658.61	5⁻			
		6414.1	30.9 *21*	5513.3	3⁻	(M1(+E2))	−0.03 *9*	Mult.,δ: D(+Q) from γ(θ) in (p,γ):resonances.
		6578.0	2.5 *9*	5349.4	4⁺			
		7050.3	11.3 *12*	4877.0	3⁻			
		7341.4	20.2 *12*	4585.87	5⁻	(M1+E2)	−0.20 *10*	Mult.,δ: D+Q from γ(θ) in (p,γ):resonances.
		7361.7	4.3 *9*	4565.5	2⁺			
		7447.2	21.1 *12*	4479.98	4⁻	(M1(+E2))	−0.10 *10*	Mult.,δ: D+Q from γ(θ) in (p,γ):resonances.
		7990.6	0.6 *3*	3936.5	2⁺			
		8116.9	5.8 *6*	3810.18	3⁻			
		8550.1[@]	<2.1	3376.9	0⁺			
		9759.2	3.1 *9*	2167.472	2⁺			
		11926.0[@]	<0.3	0.0	0⁺			
11997.5	(7⁻ to 11⁻)	1050 *1*	100	10947.5	(9⁻)			E_γ: from (^{28}Si,α2pγ).
12106.8	(10⁺)	2570[@] *2*	25 *8*	9537.0	8⁽⁺⁾			E_γ,I_γ: from (^{28}Si,α2pγ).
		3537 *2*	100 *17*	8569.59	8⁺			E_γ,I_γ: from (^{28}Si,α2pγ).
12394	(3⁻,4,5⁻)	x						I_γ: 48% γ absolute branching is unobserved. Additional information 142.
		6184	46	6209.4	4⁻			
		6352	4.2	6041.8	(3⁻,4⁺)			
		6735	4.2	5658.61	5⁻			
		6880	100	5513.3	3⁻			
		7516	33	4877.0	3⁻			
		7807	13	4585.87	5⁻			
		8583	4.2	3810.18	3⁻			
12405	(3⁻,4,5⁻)	x						I_γ: 48% γ absolute branching is unobserved. Additional information 143.
		6195	75	6209.4	4⁻			
		6579	10	5824.9	3⁻			
		6891	100	5513.3	3⁻			
		7527	25	4877.0	3⁻			
		7818	20	4585.87	5⁻			
		7924	25	4479.98	4⁻			
		8594	5.0	3810.18	3⁻			
13683.7	(12⁻)	2068.5 *7*	100 *6*	11614.7	11⁻	D+Q		E_γ,I_γ: from (^{28}Si,α2pγ). Mult.,δ: from γ(DCO) in (^{28}Si,α2pγ), δ=−2.7 +*6*−*8* or −0.30 +*8*−*11*.
		2134.9 *6*	97 *13*	11549.1	(10⁻)	Q		E_γ,I_γ: from (^{28}Si,α2pγ). Mult.: from γ(DCO) in (^{28}Si,α2pγ).

$^{38}_{18}Ar_{20}$-80

Adopted Levels, Gammas (continued)

γ(^{38}Ar) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
14119.7	(8$^+$,9,10,11$^+$)	2821 *2*	100 *29*	11298.7	(10$^+$)		E_γ,I_γ: from (^{28}Si,α2pγ).
		4185 *3*	57 *29*	9934.0	(9$^+$)		E_γ,I_γ: from (^{28}Si,α2pγ).
14391.2	(12$^+$)	2285[@] *1*	8 *2*	12106.8	(10$^+$)		E_γ,I_γ: from (^{28}Si,α2pγ).
		2475.7 *8*	100 *8*	11915.4	(10$^+$)	Q	E_γ,I_γ: from (^{28}Si,α2pγ). Mult.: from γ(DCO) in (^{28}Si,α2pγ).
		3093 *2*	29 *8*	11298.7	(10$^+$)		E_γ,I_γ: from (^{28}Si,α2pγ).
14877.5	(12$^+$)	2962 *2*	100	11915.4	(10$^+$)		
15393.9	(13$^-$)	3779 *2*	100	11614.7	11$^-$	Q	E_γ,δ: from (^{28}Si,α2pγ).
17002.3	(14$^+$)	2611 *1*	100	14391.2	(12$^+$)		E_γ: from (^{28}Si,α2pγ).
17780.9		4097 *2*	100	13683.7	(12$^-$)		E_γ: from (^{28}Si,α2pγ).
18070?	(14$^+$)	3192[@] *3*	100	14877.5	(12$^+$)		E_γ: from (^{28}Si,α2pγ).
21662?	(16$^+$)	3592[@] *3*	100	18070?	(14$^+$)		E_γ: from (^{28}Si,α2pγ).

† Values with uncertainties are from (p,γ):resonances and those without uncertainties are from level-energy differences (with the latter also reported in (p,γ):resonances), unless otherwise noted.

‡ From (p,γ):resonances, unless otherwise noted.

The assignments are from $\gamma(\theta)$, $\gamma\gamma(\theta)$(DCO) and γ(lin pol) measurements. In addition, RUL for E2 and M2 transitions is used when level lifetimes are known. The measurements are primarily from the following reactions: ^{24}Mg(^{16}O,2pγ), ^{27}Al(^{14}N,n2pγ), ^{27}Al(^{16}O,αpγ), ^{16}O(^{28}Si,α2pγ) and ^{37}Cl(p,γ):resonances.

@ Placement of transition in the level scheme is uncertain.

$^{38}_{18}Ar_{20}$-81

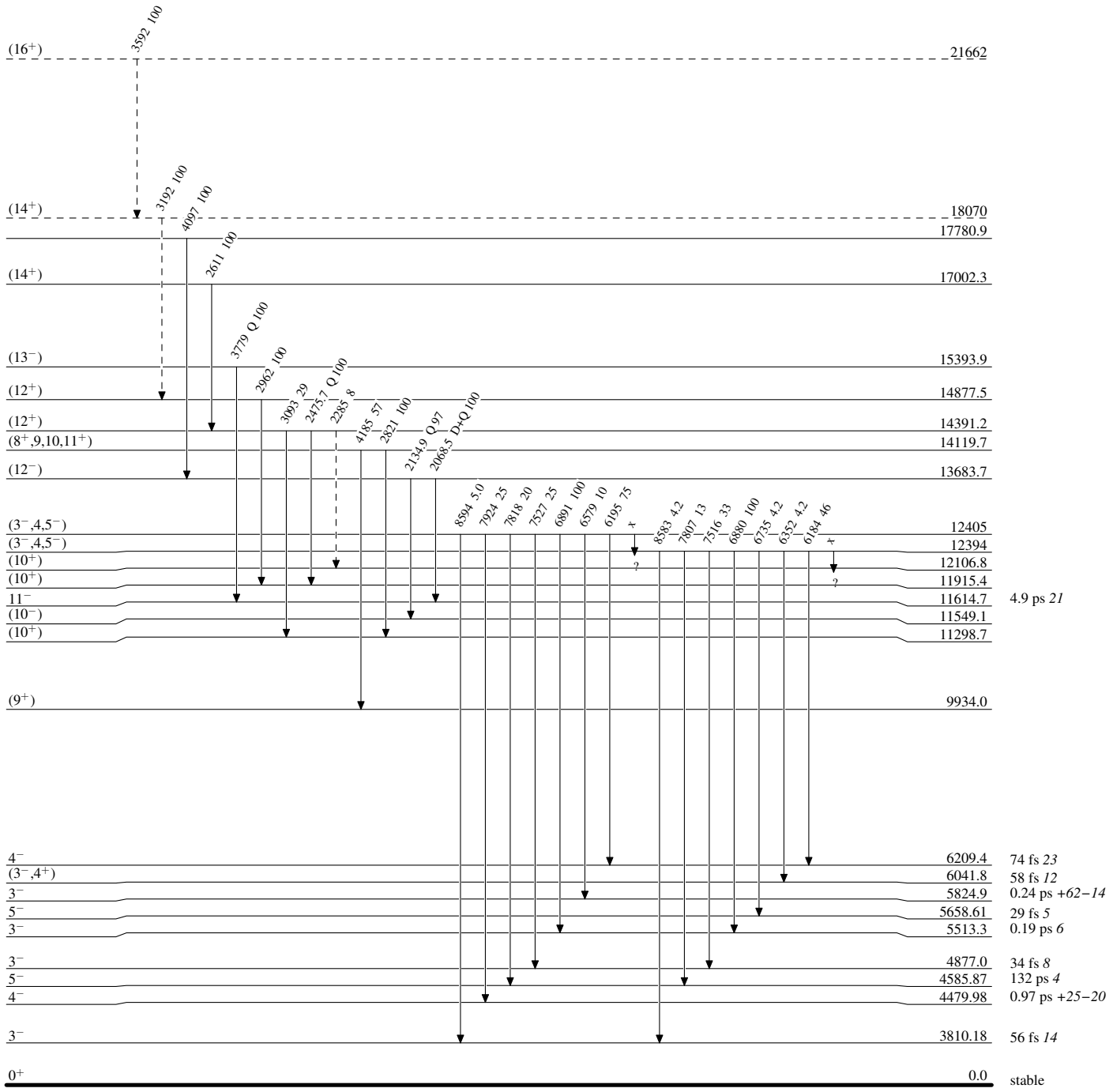
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

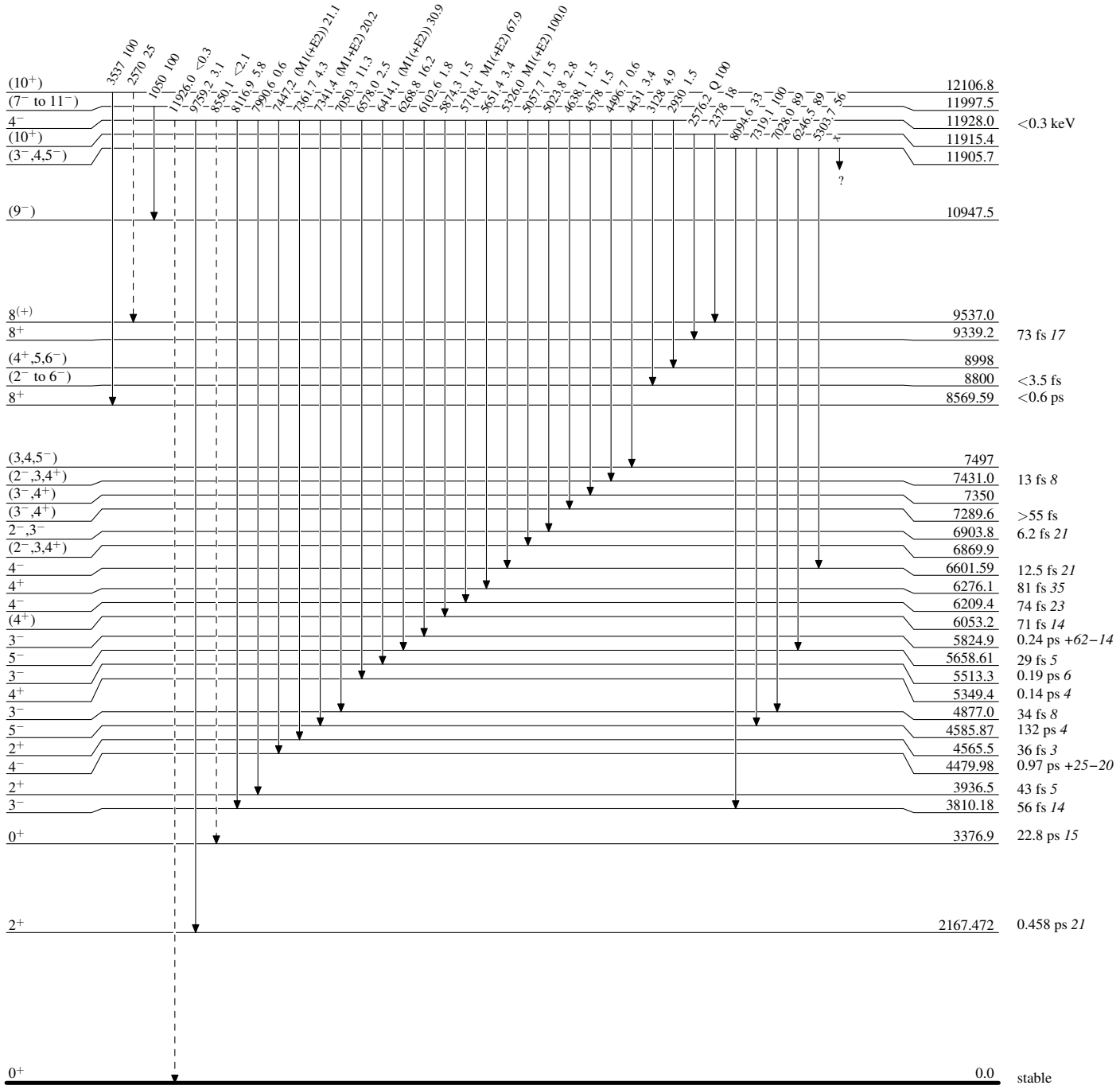
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

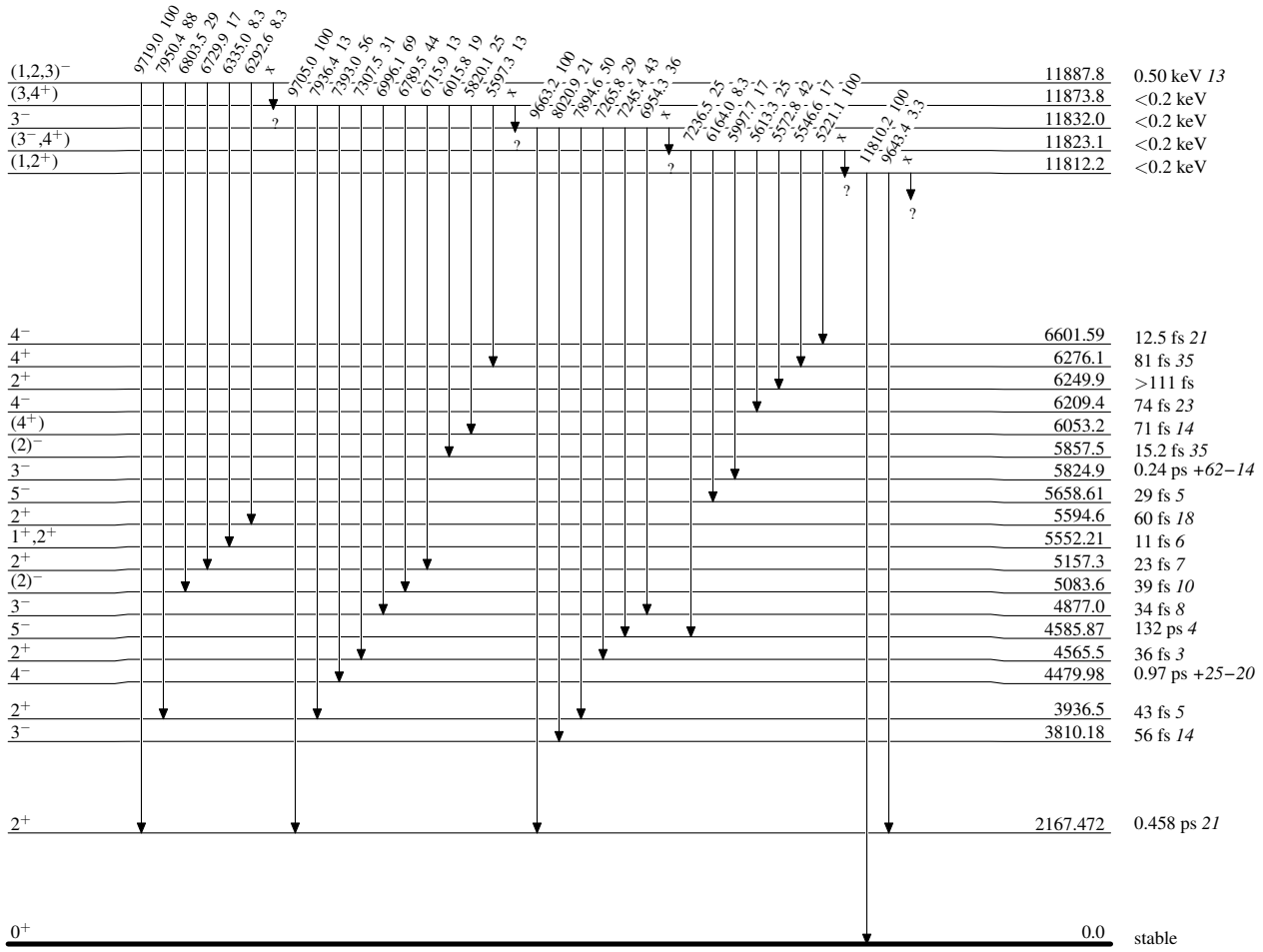


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

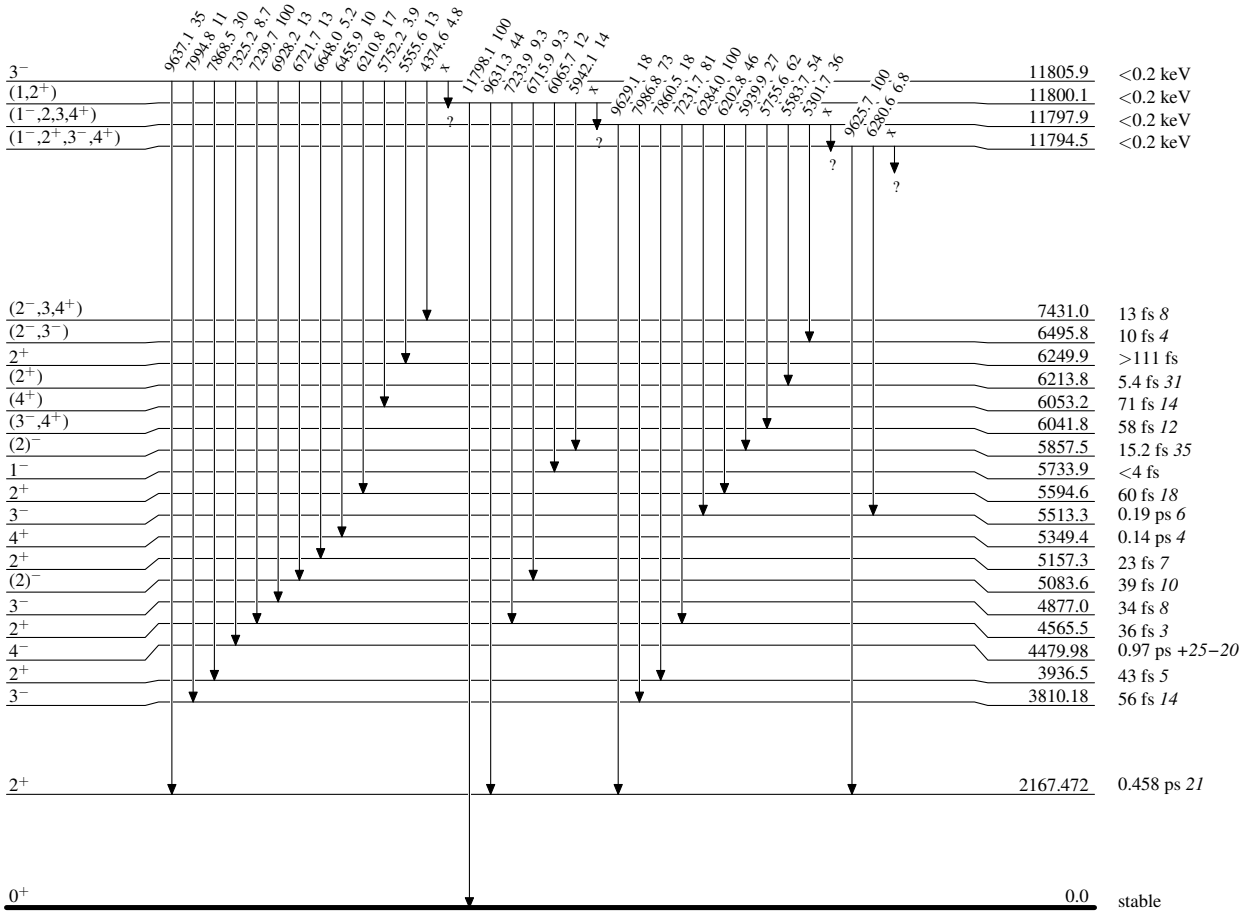


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

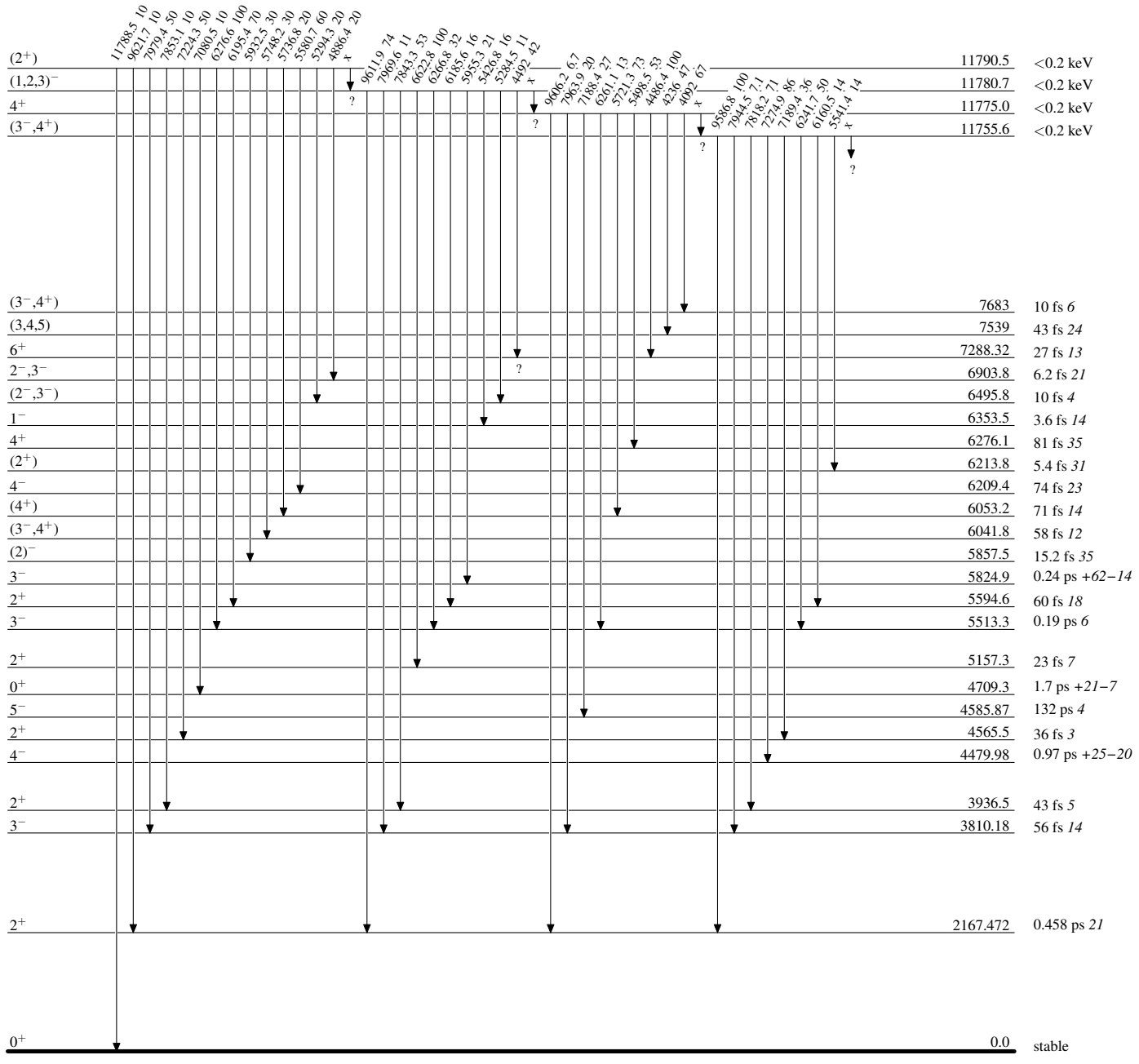


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

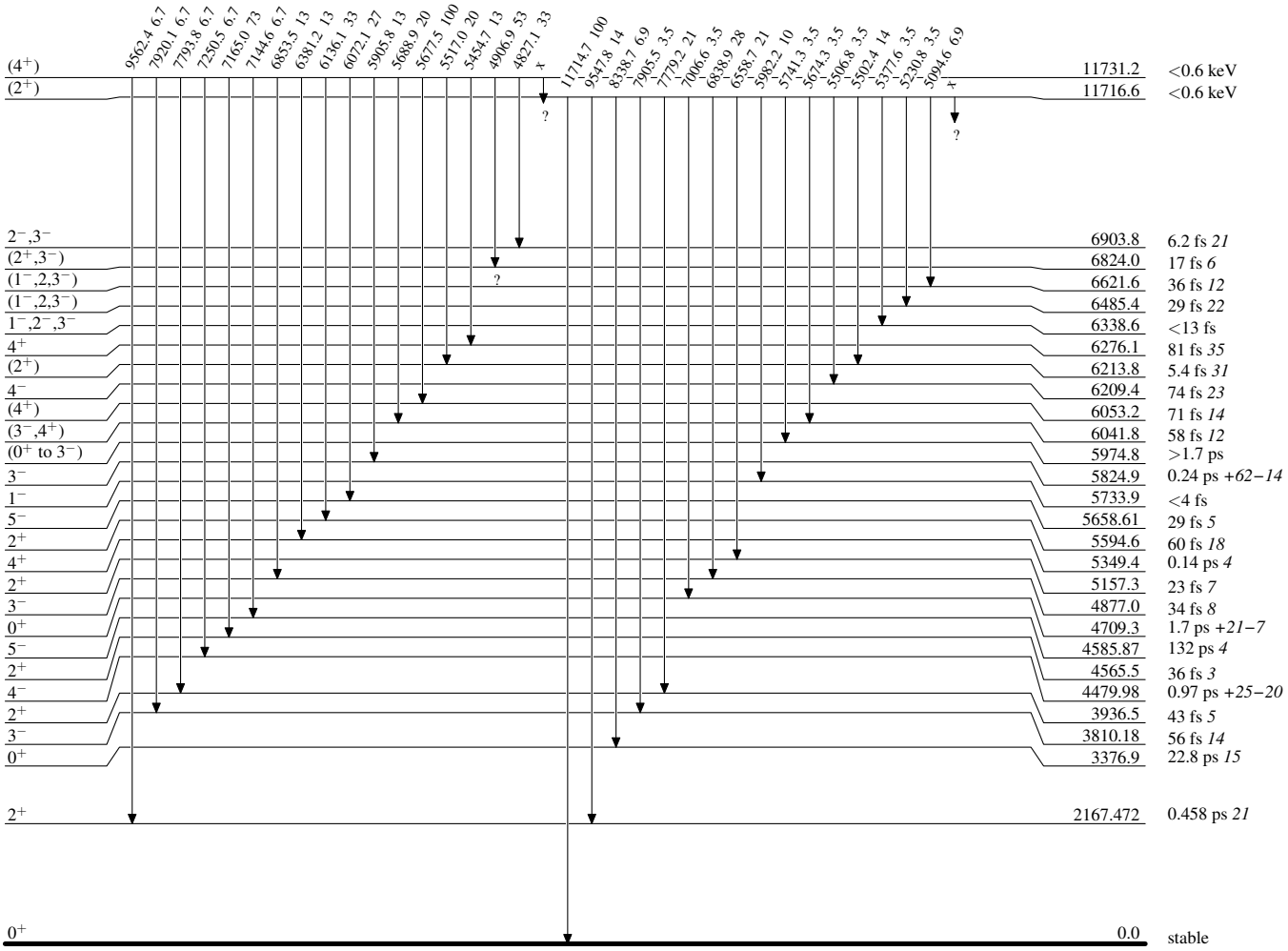


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

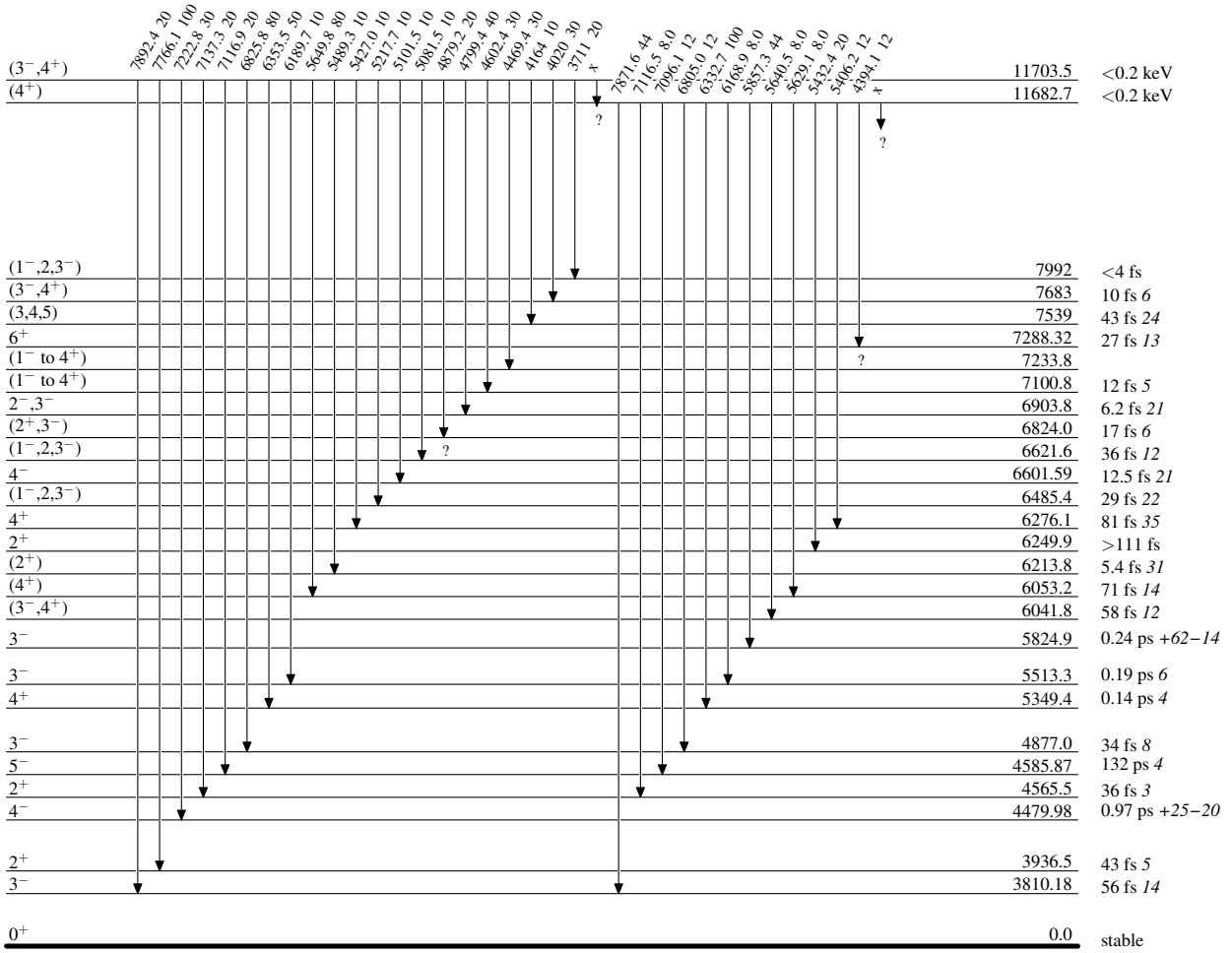


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

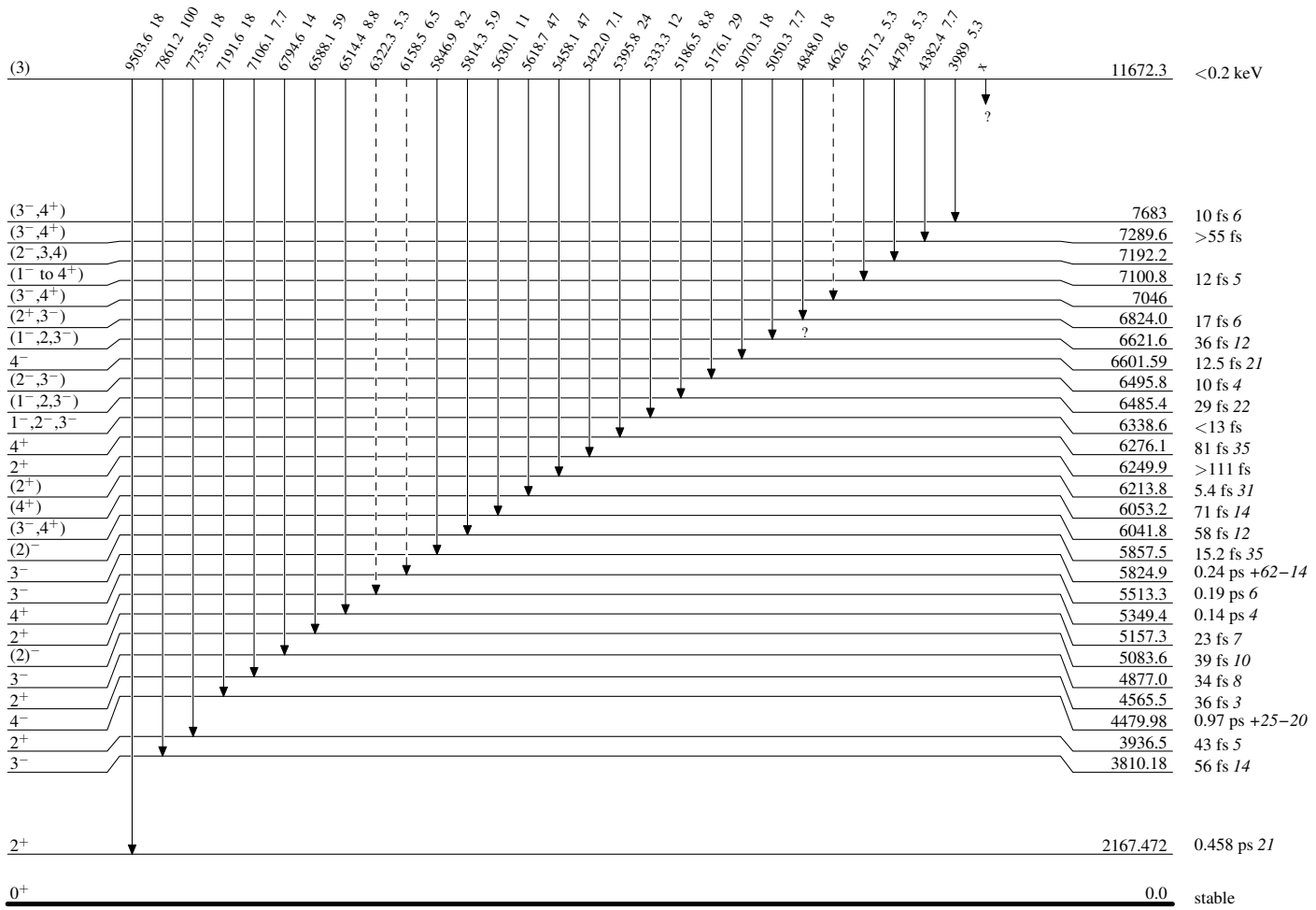
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

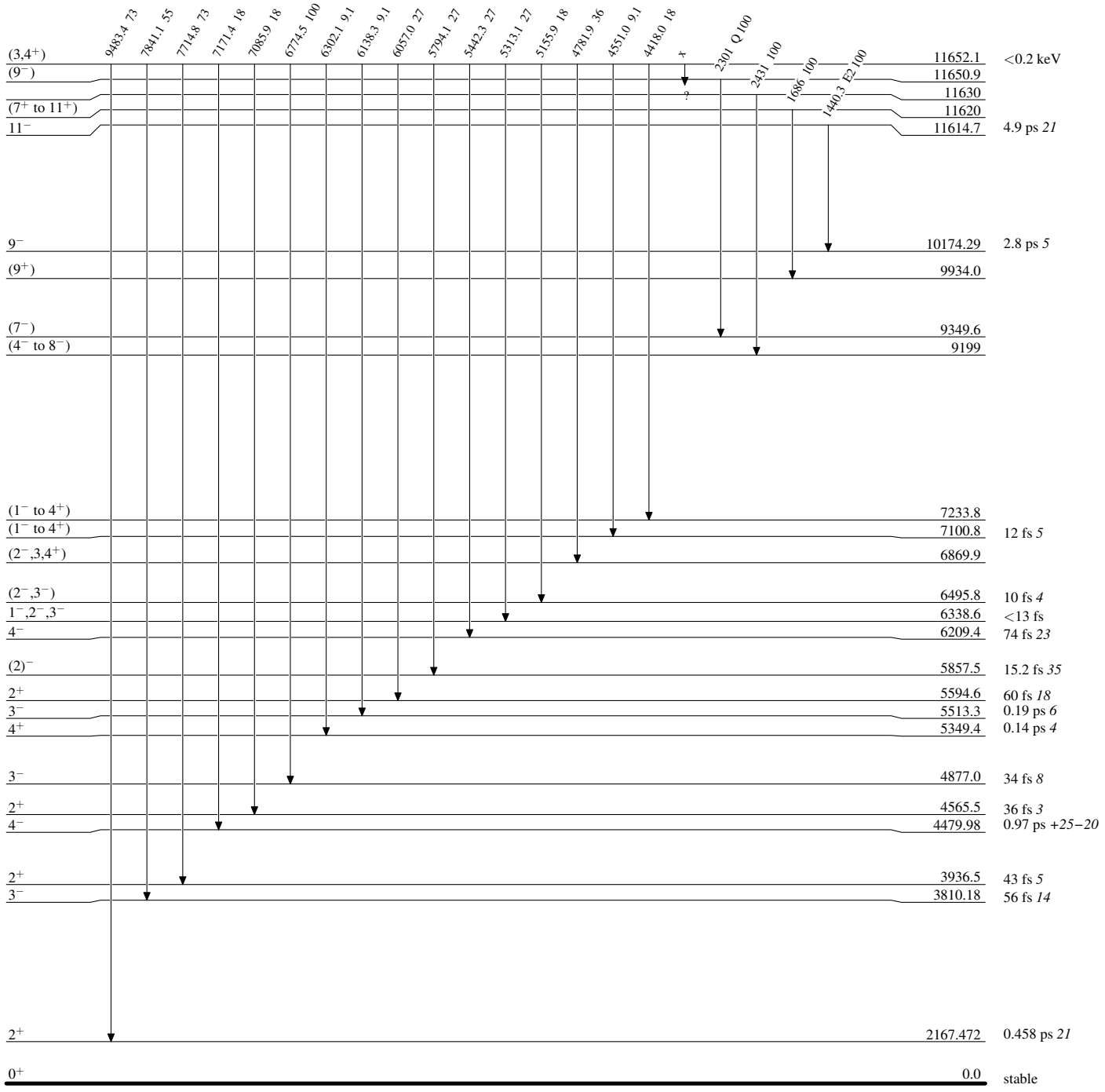


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

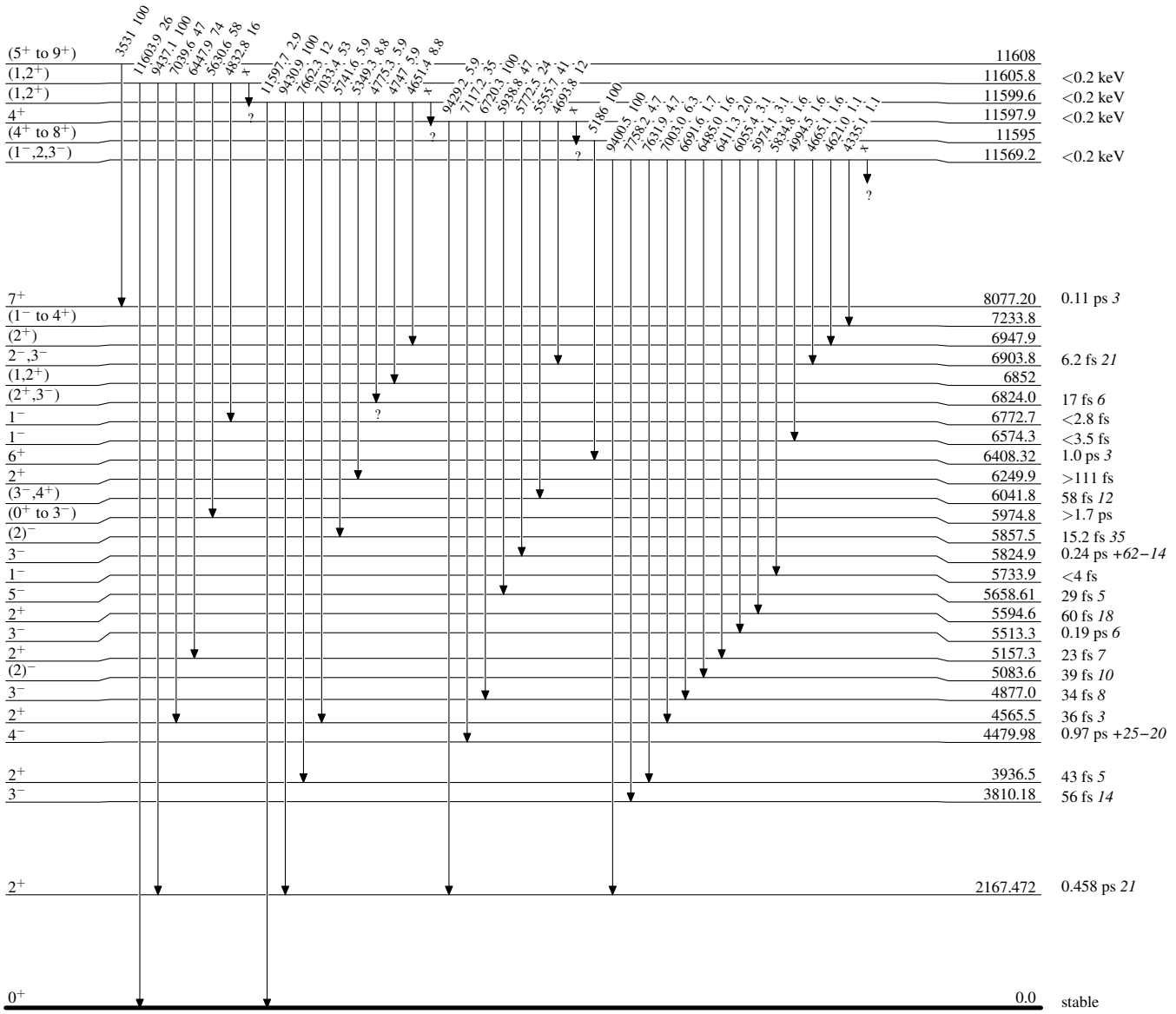


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

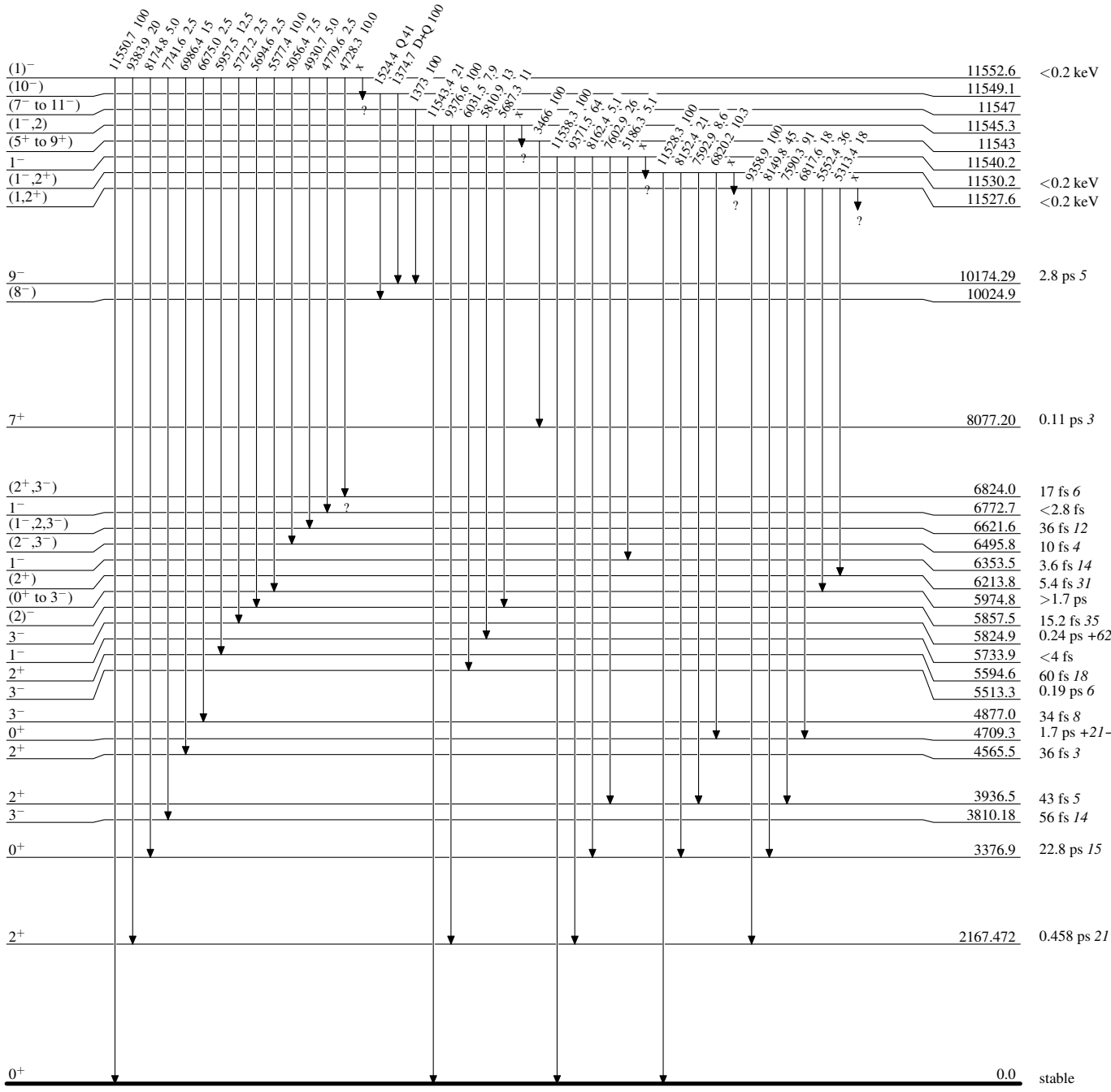


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

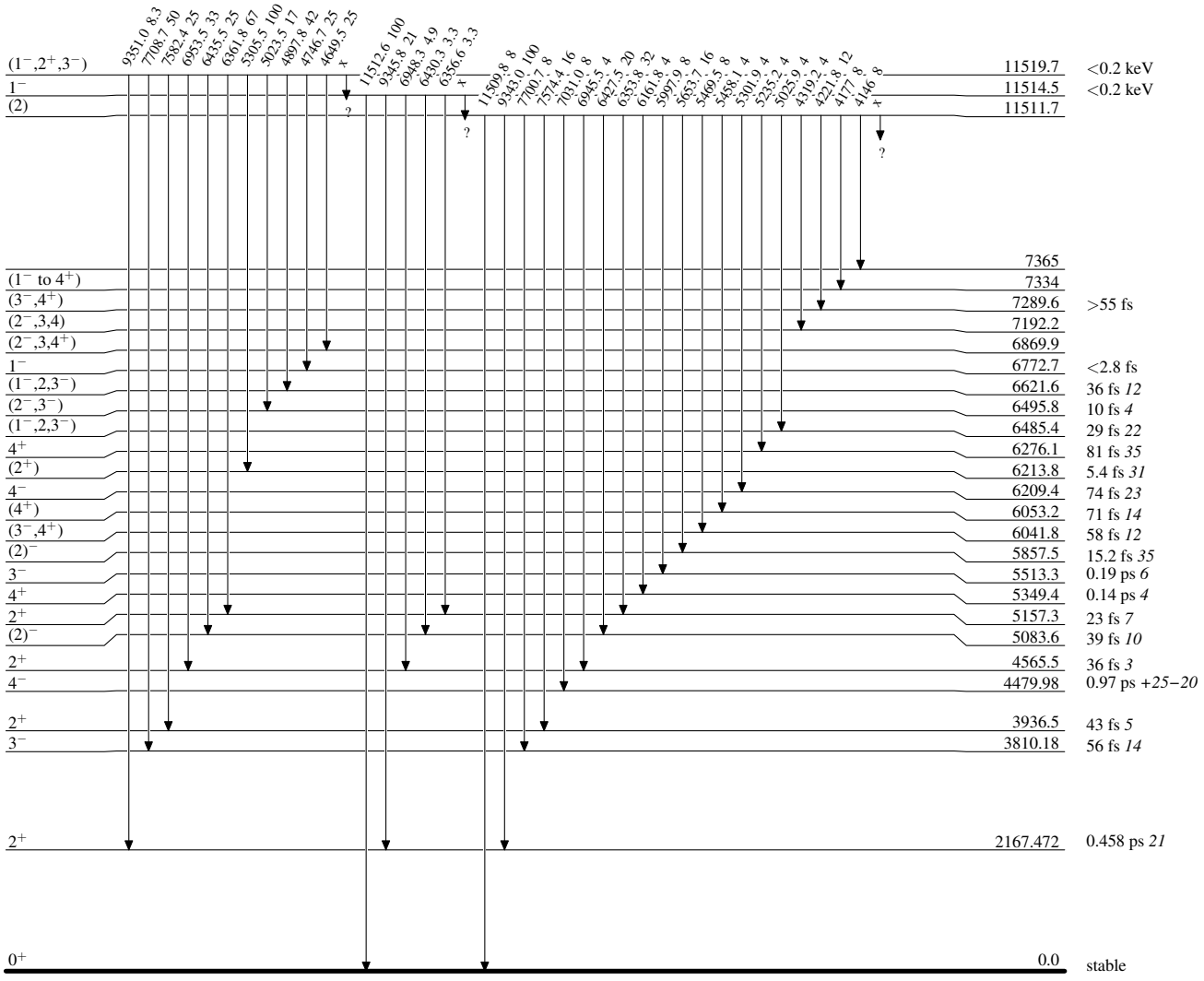


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

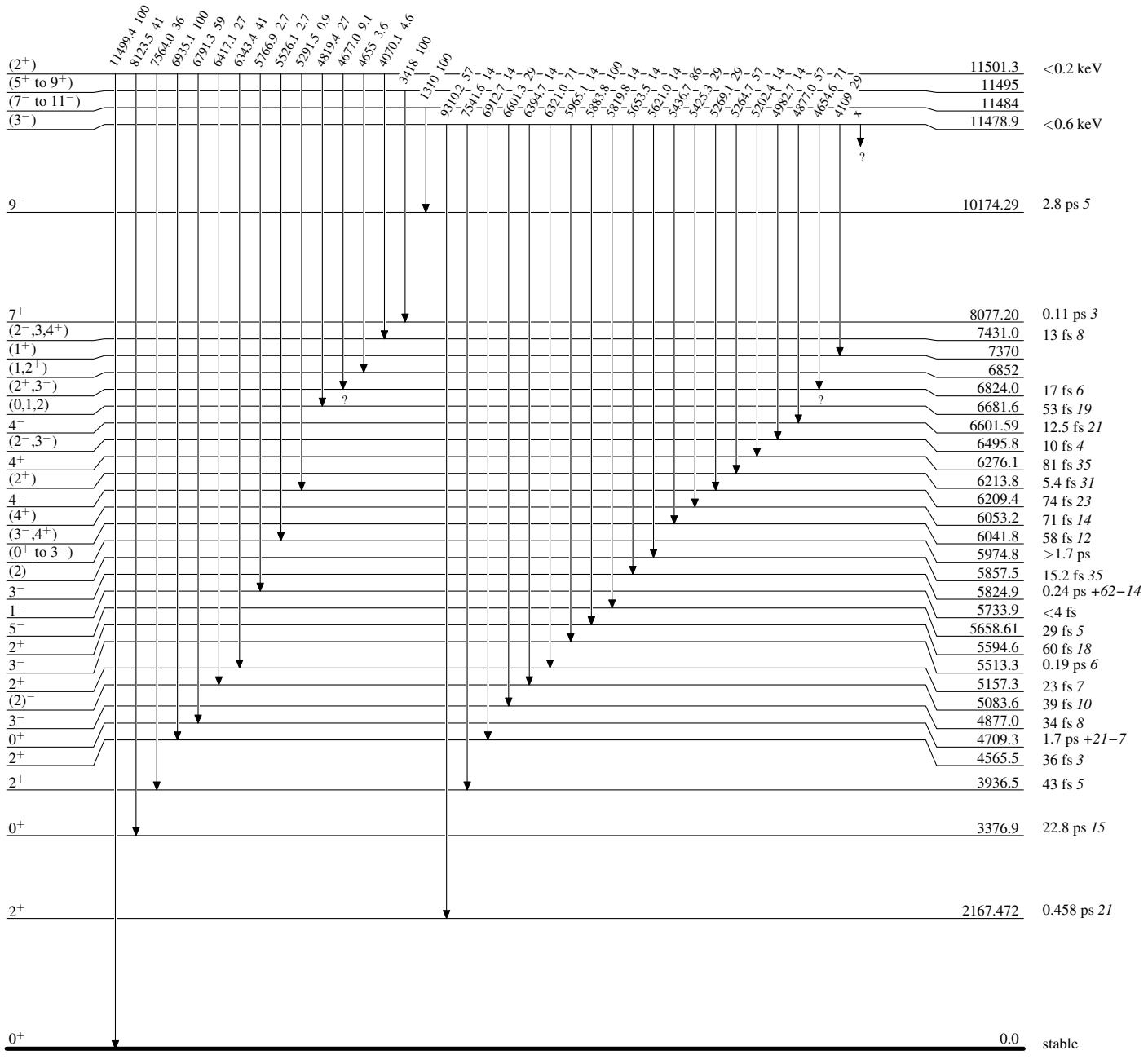


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

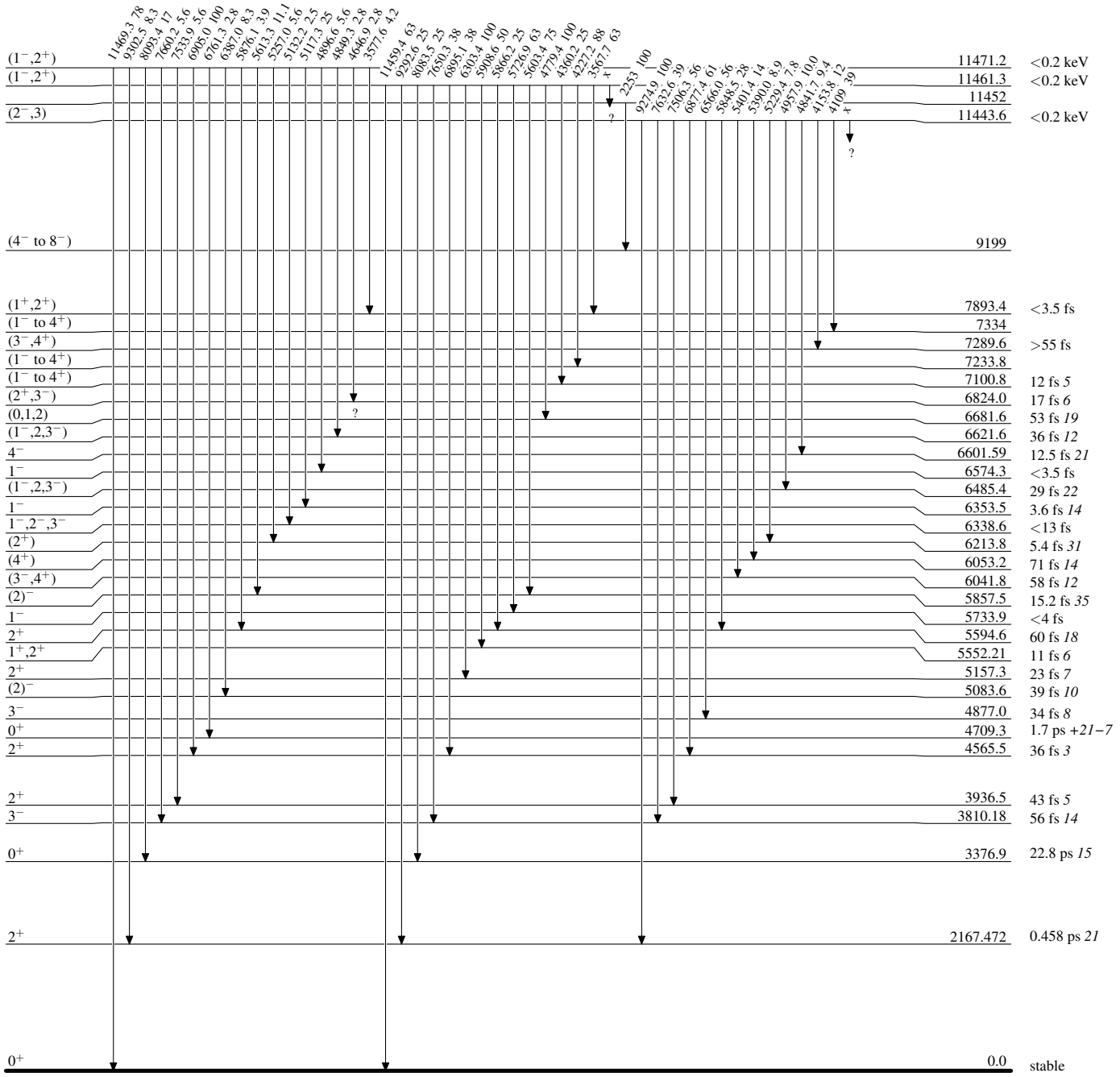


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

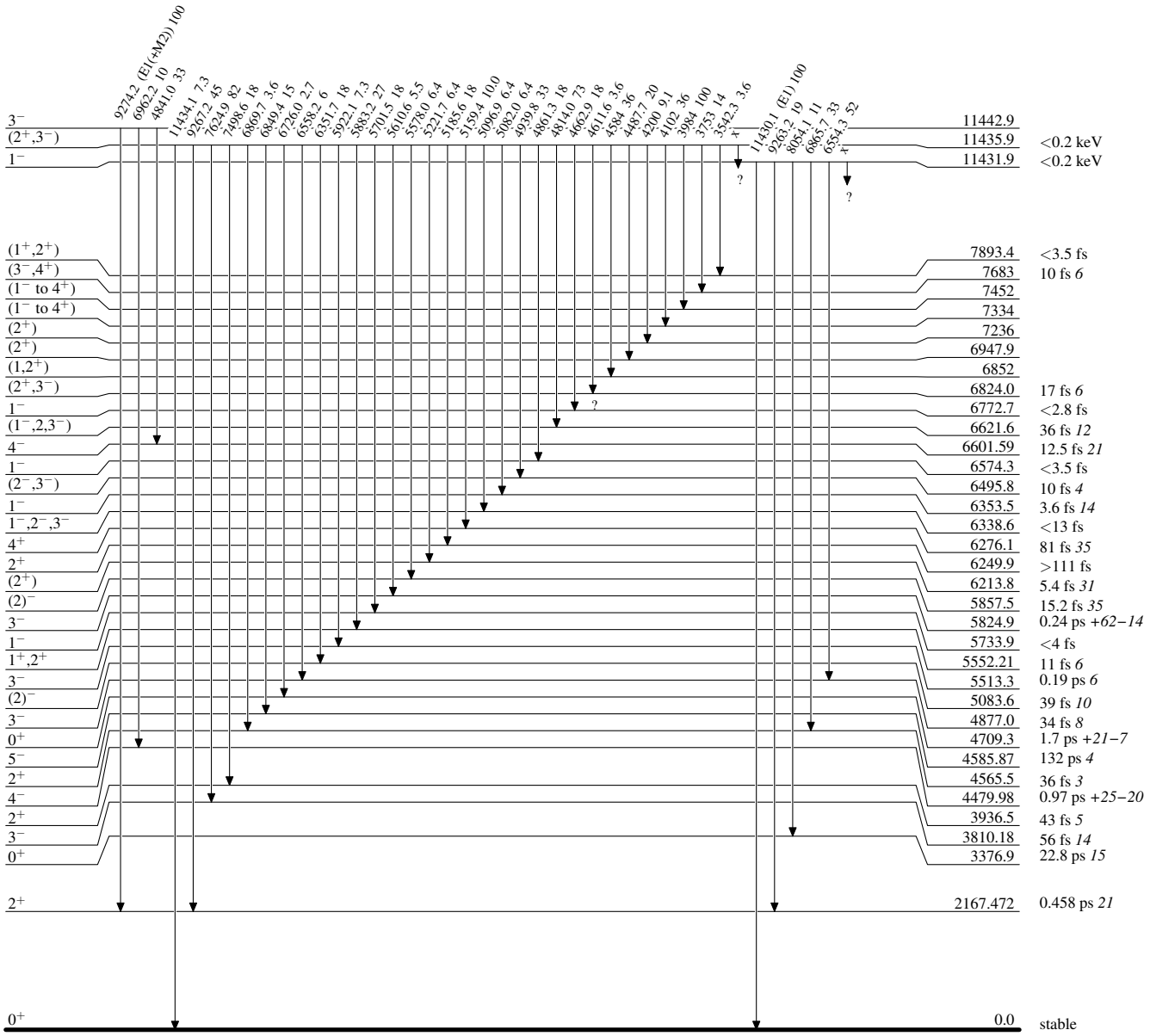


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

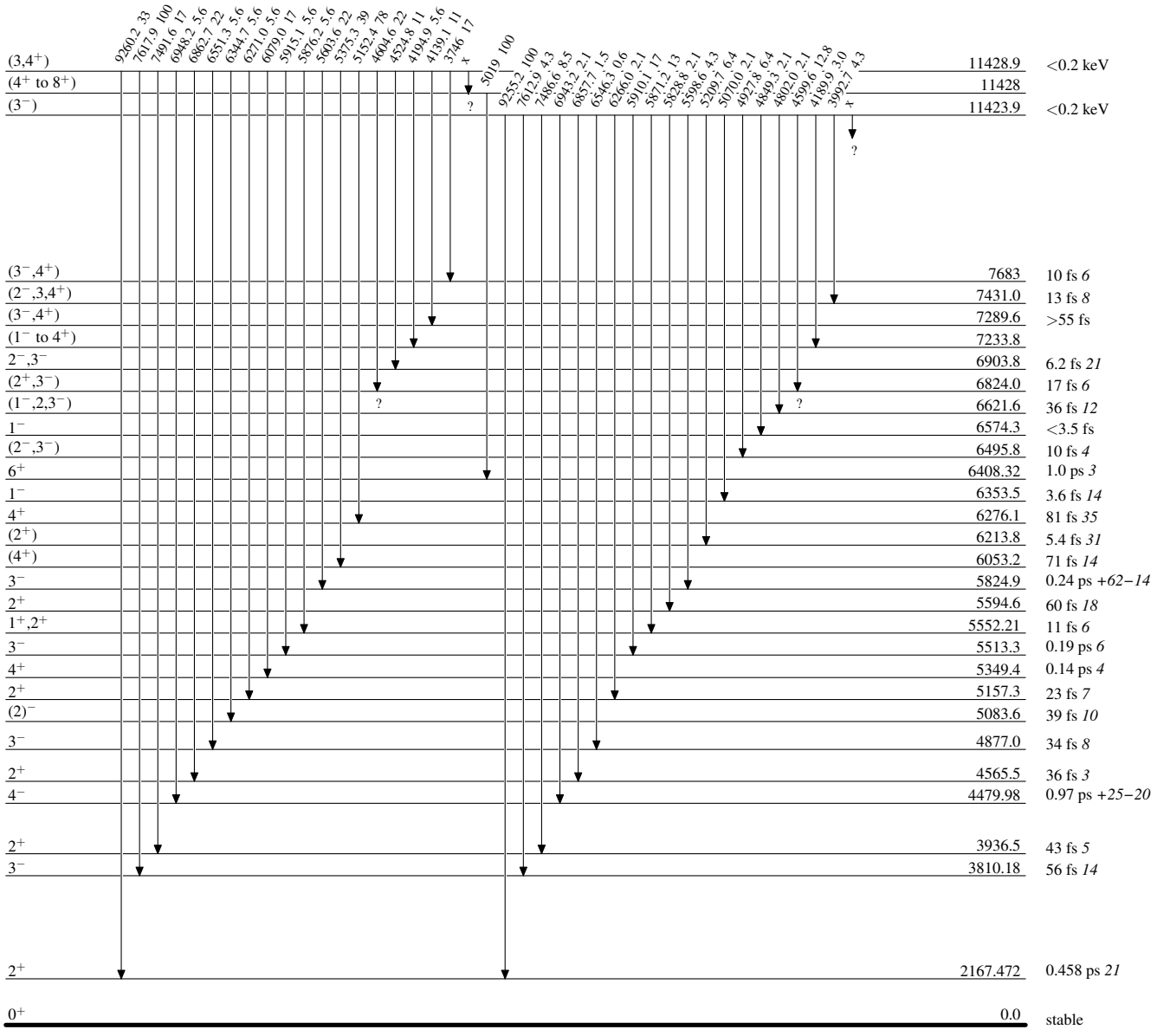


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

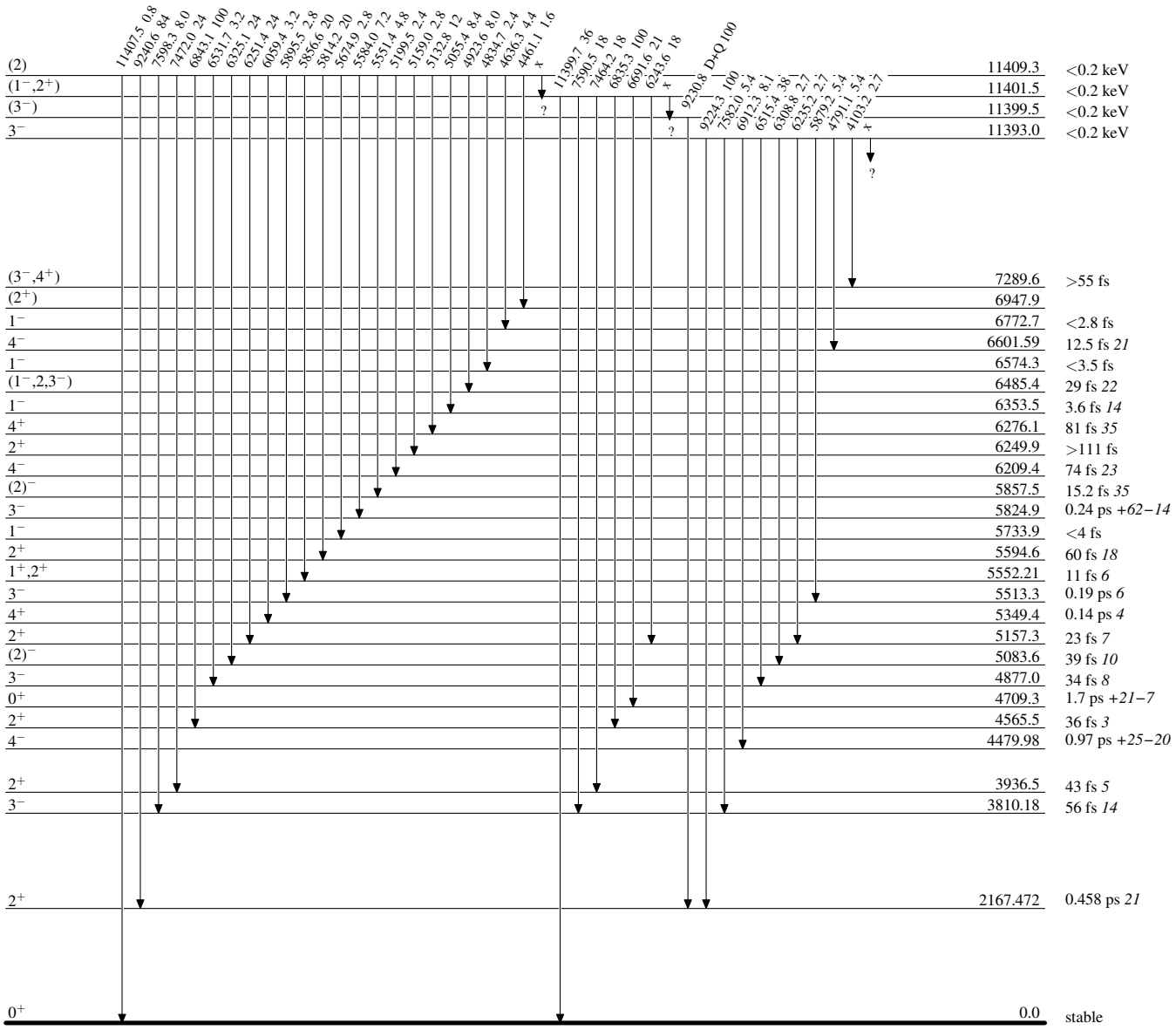


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

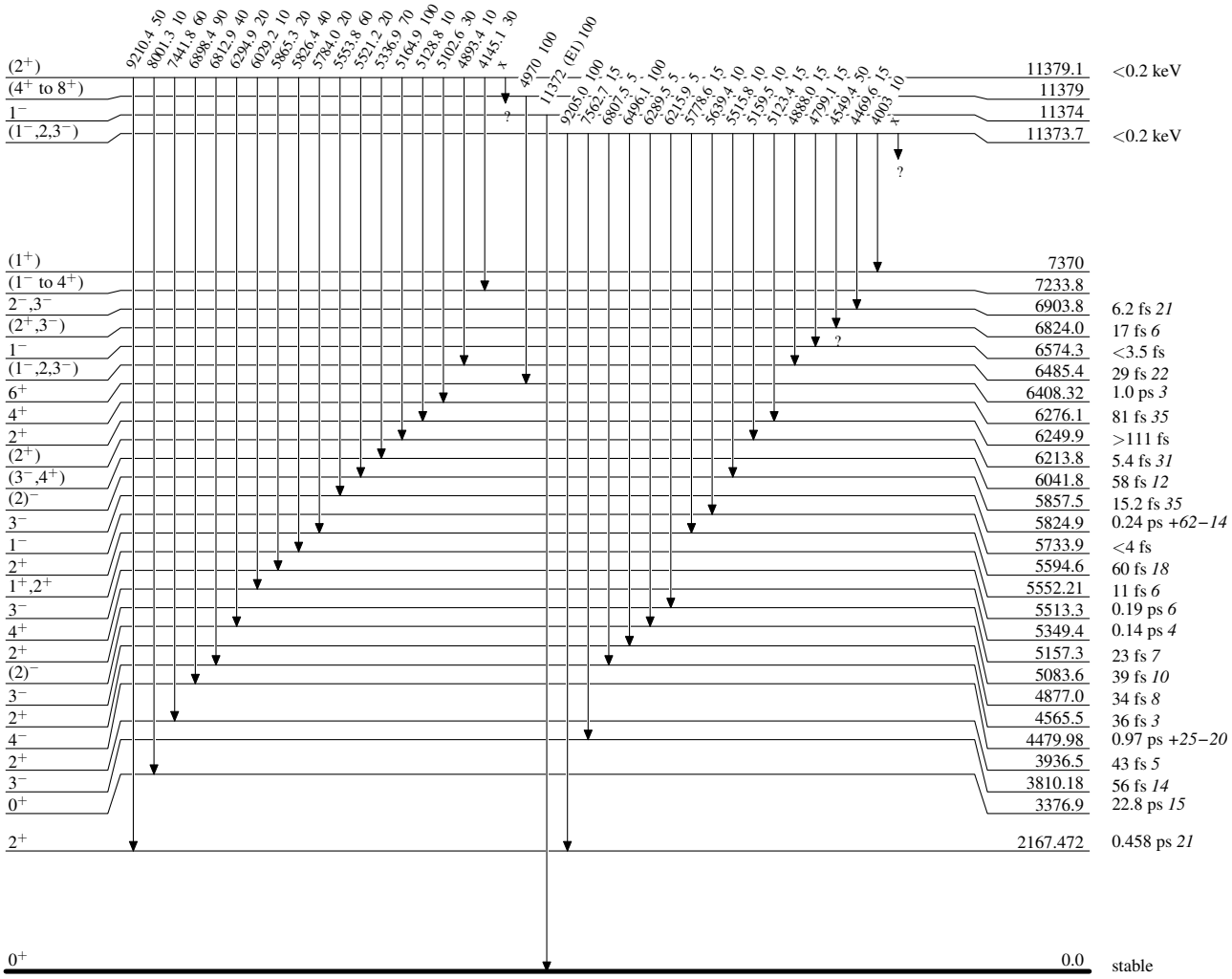


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

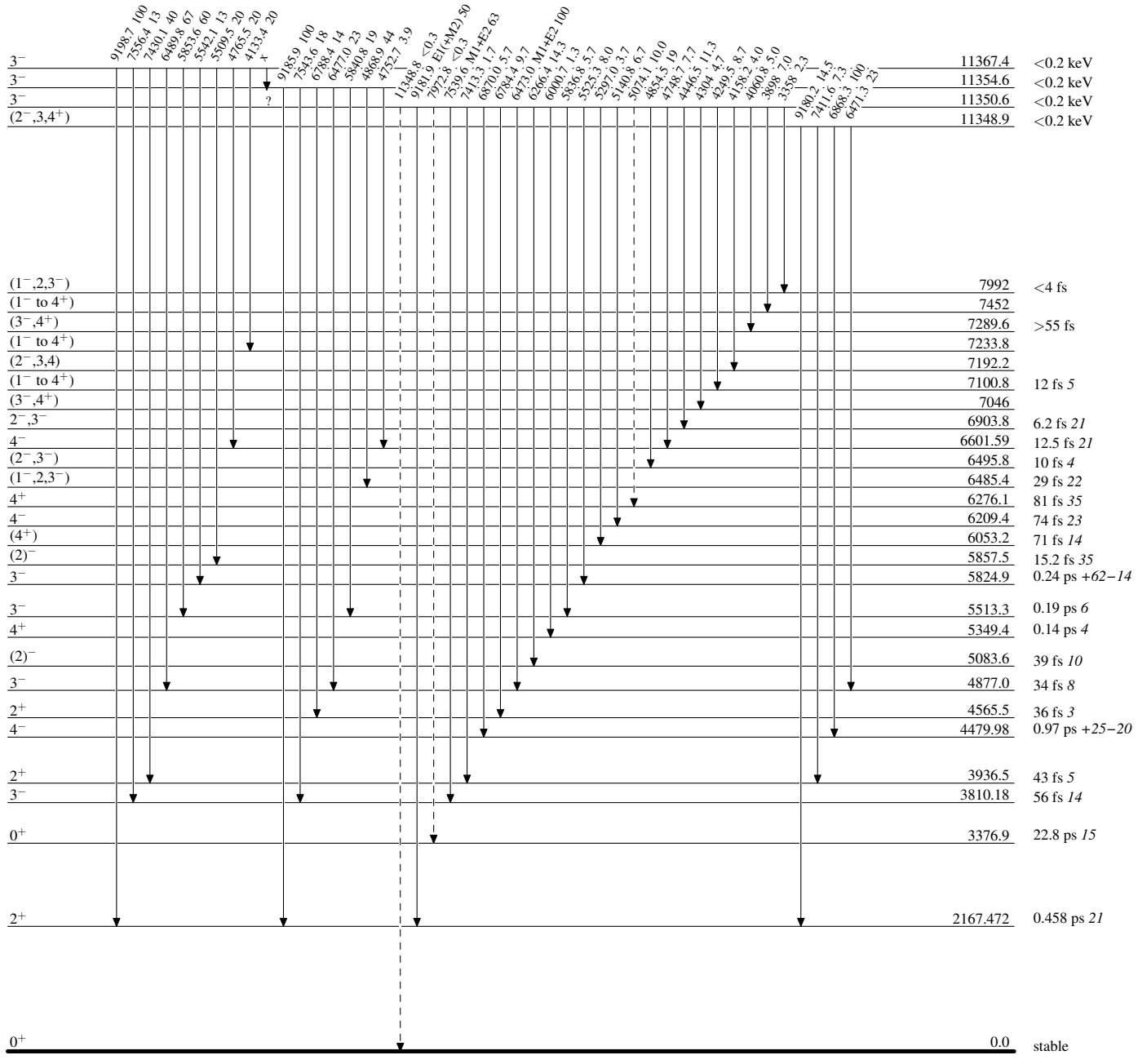
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

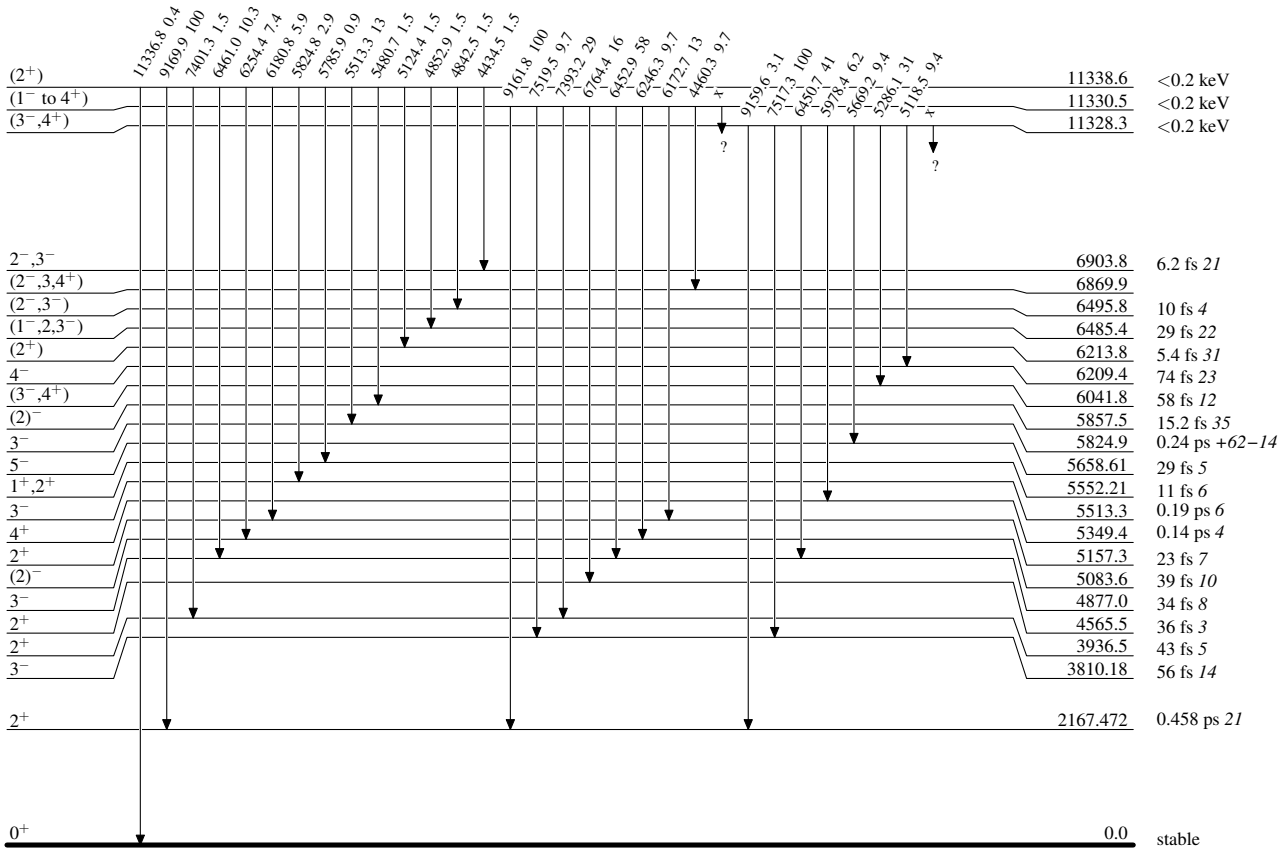


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

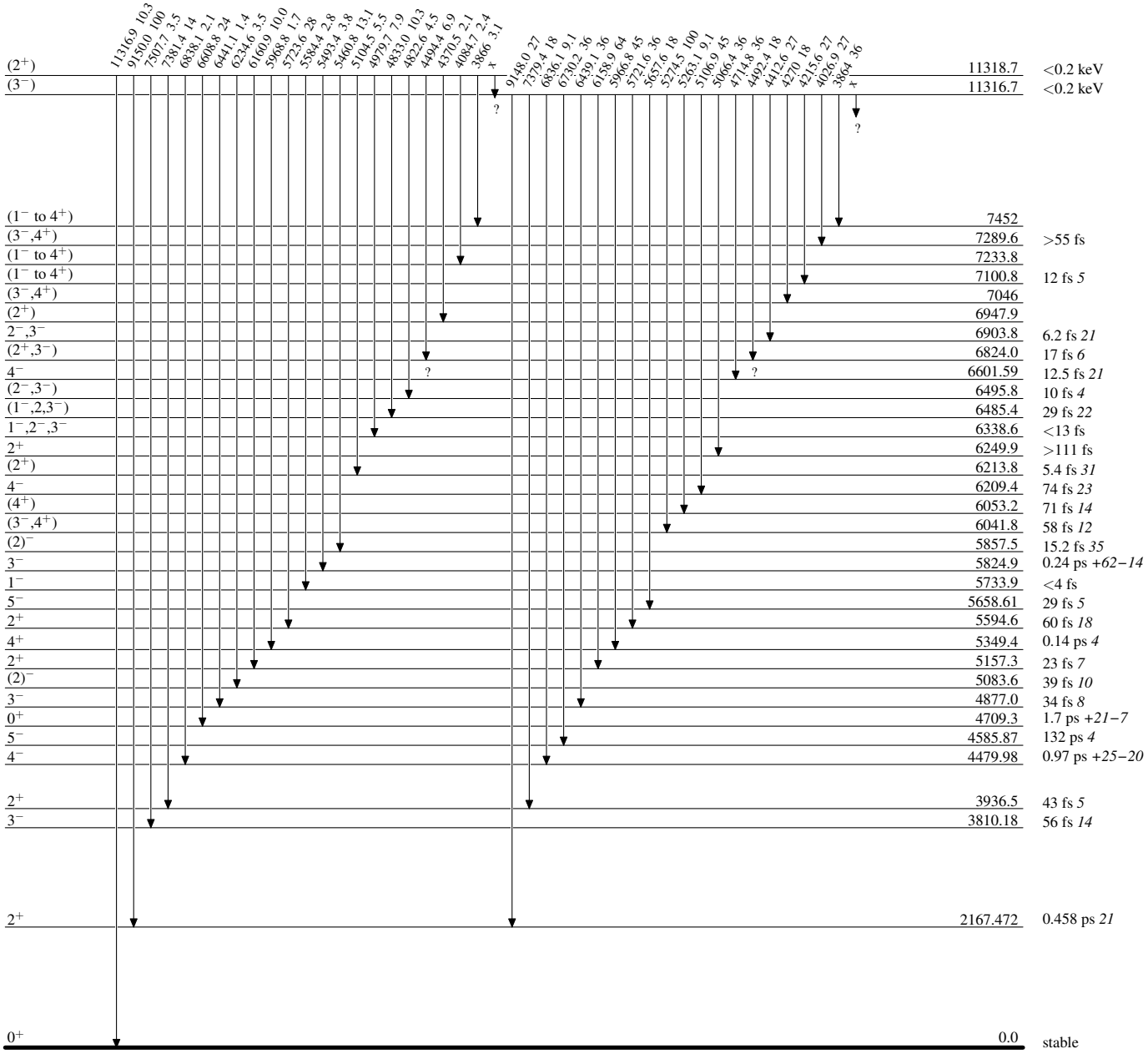


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

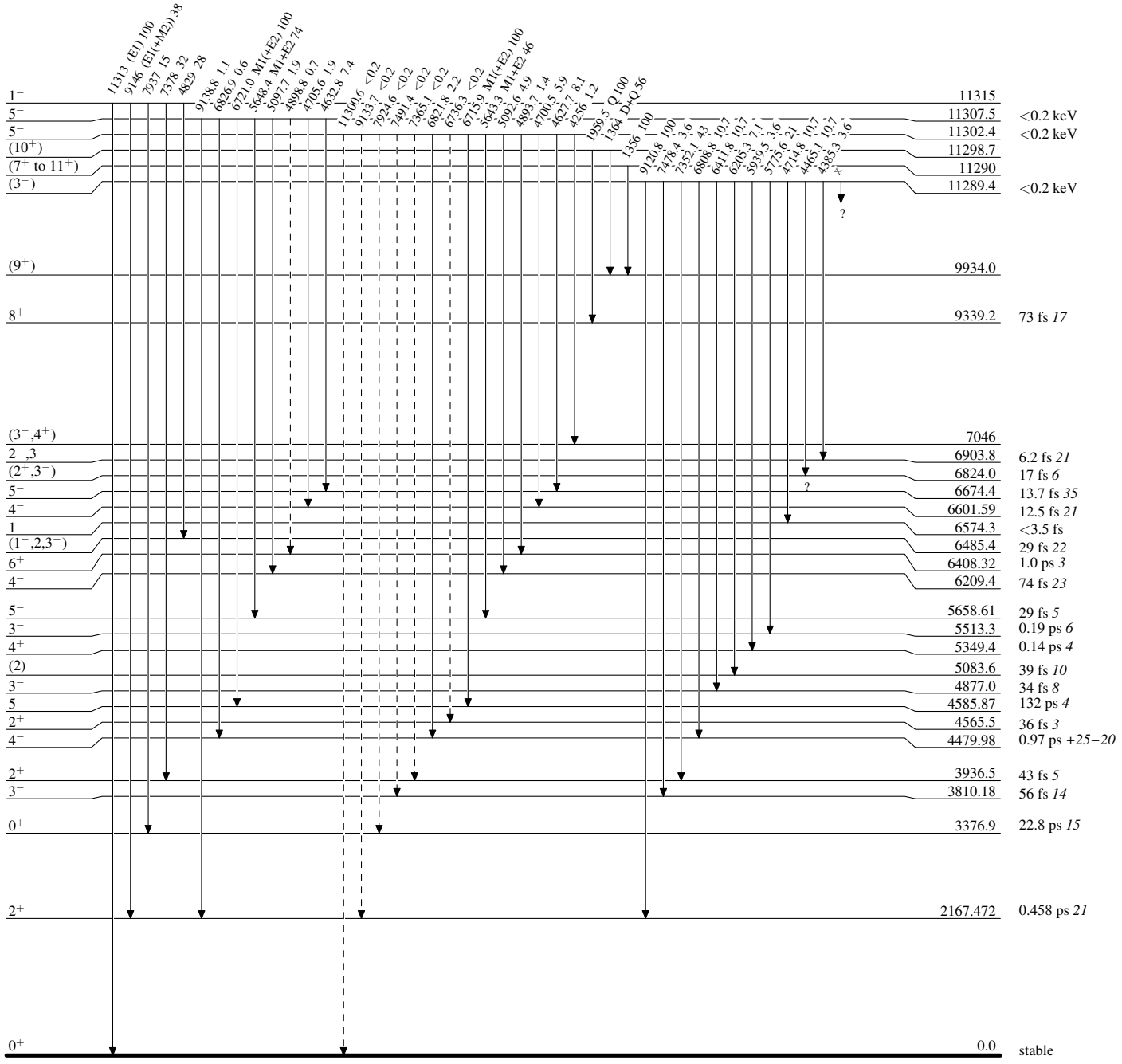
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

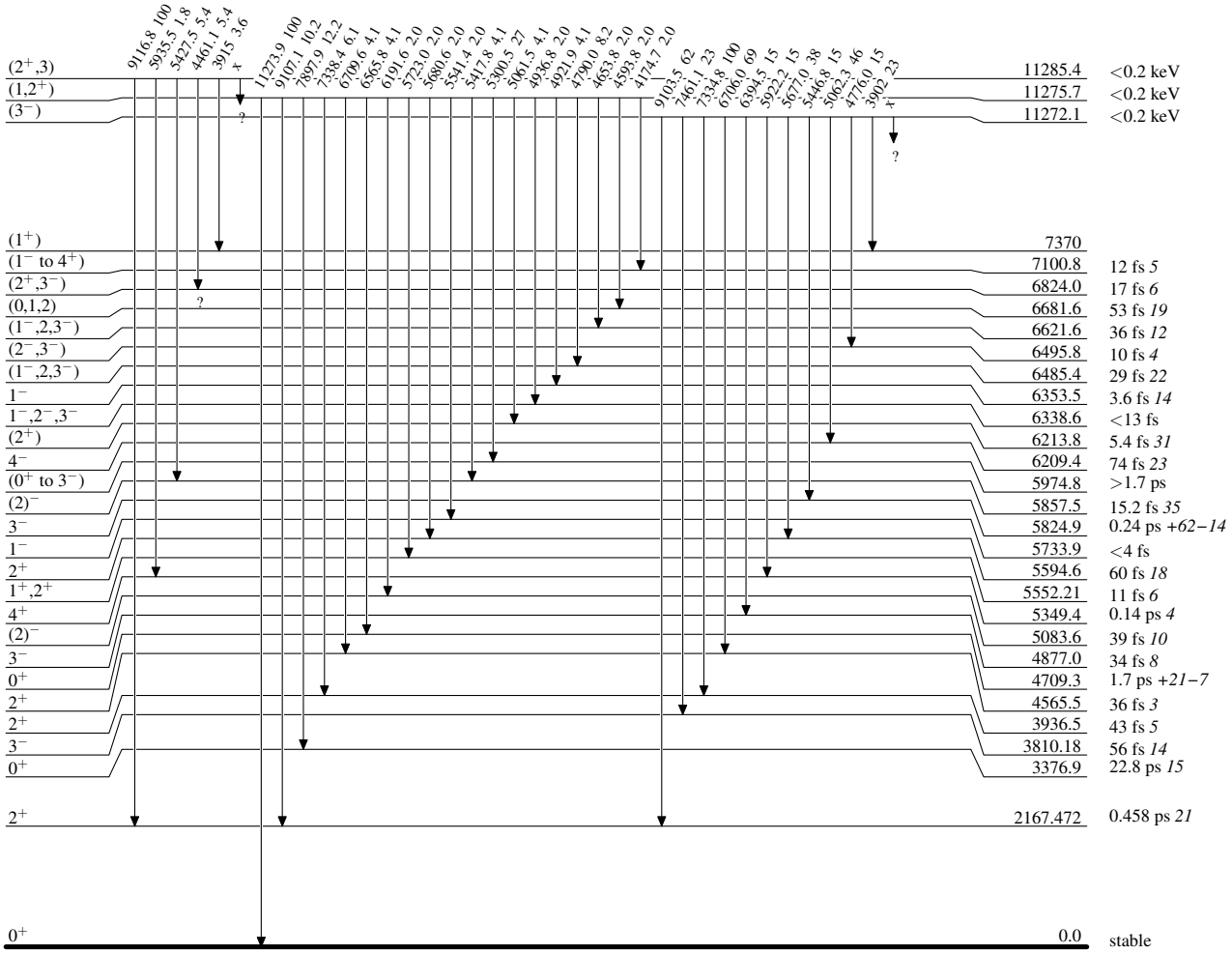


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

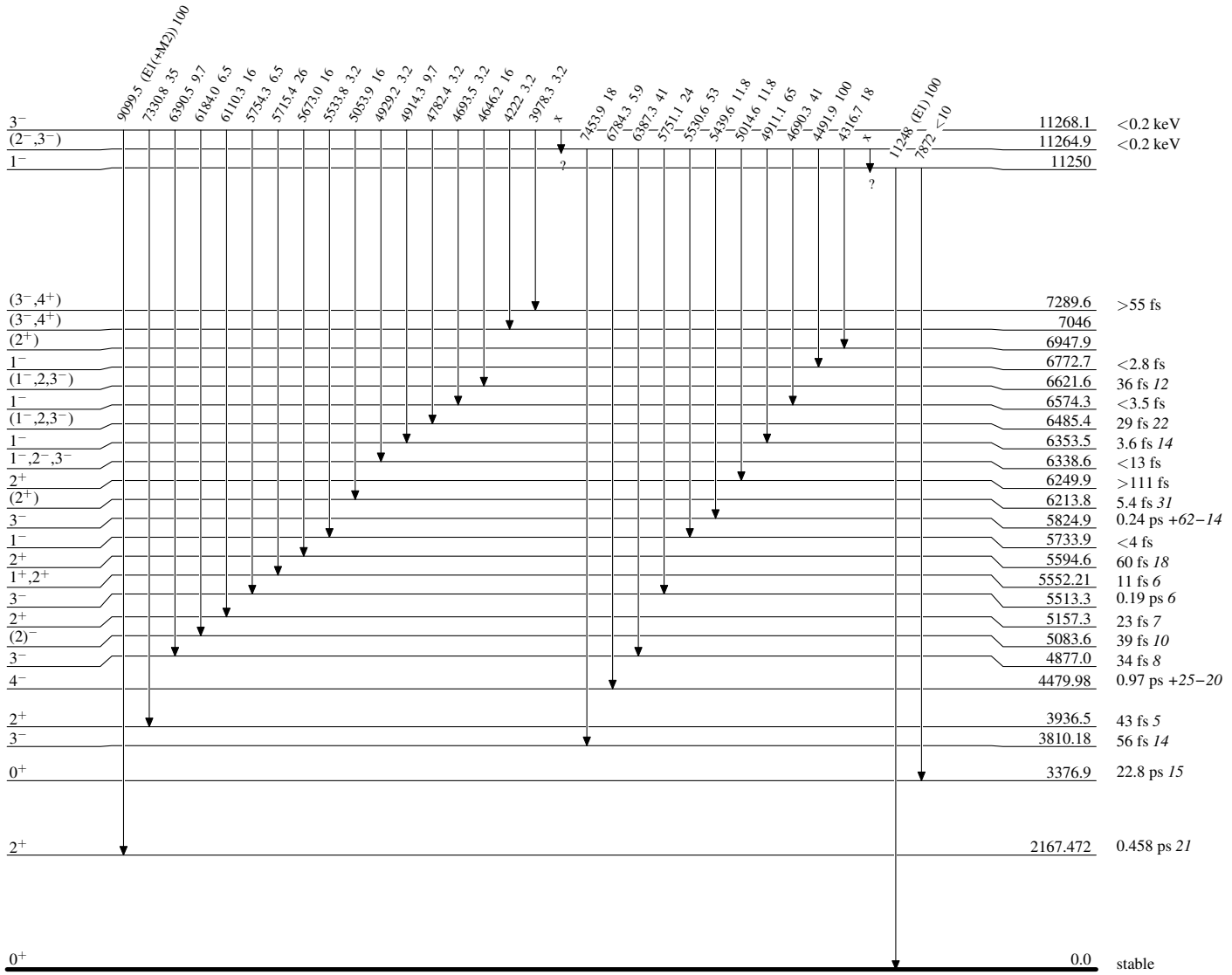


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

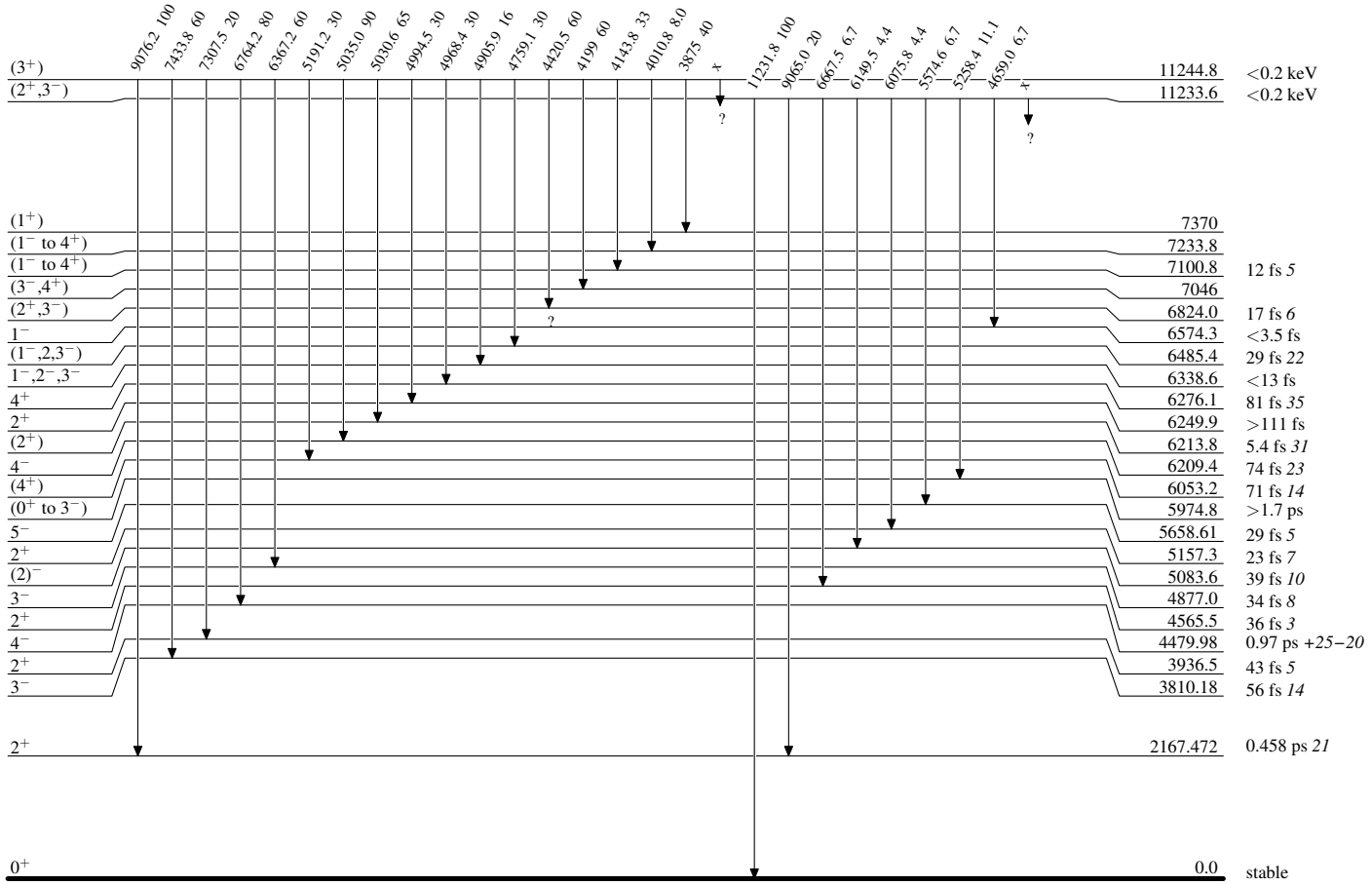


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

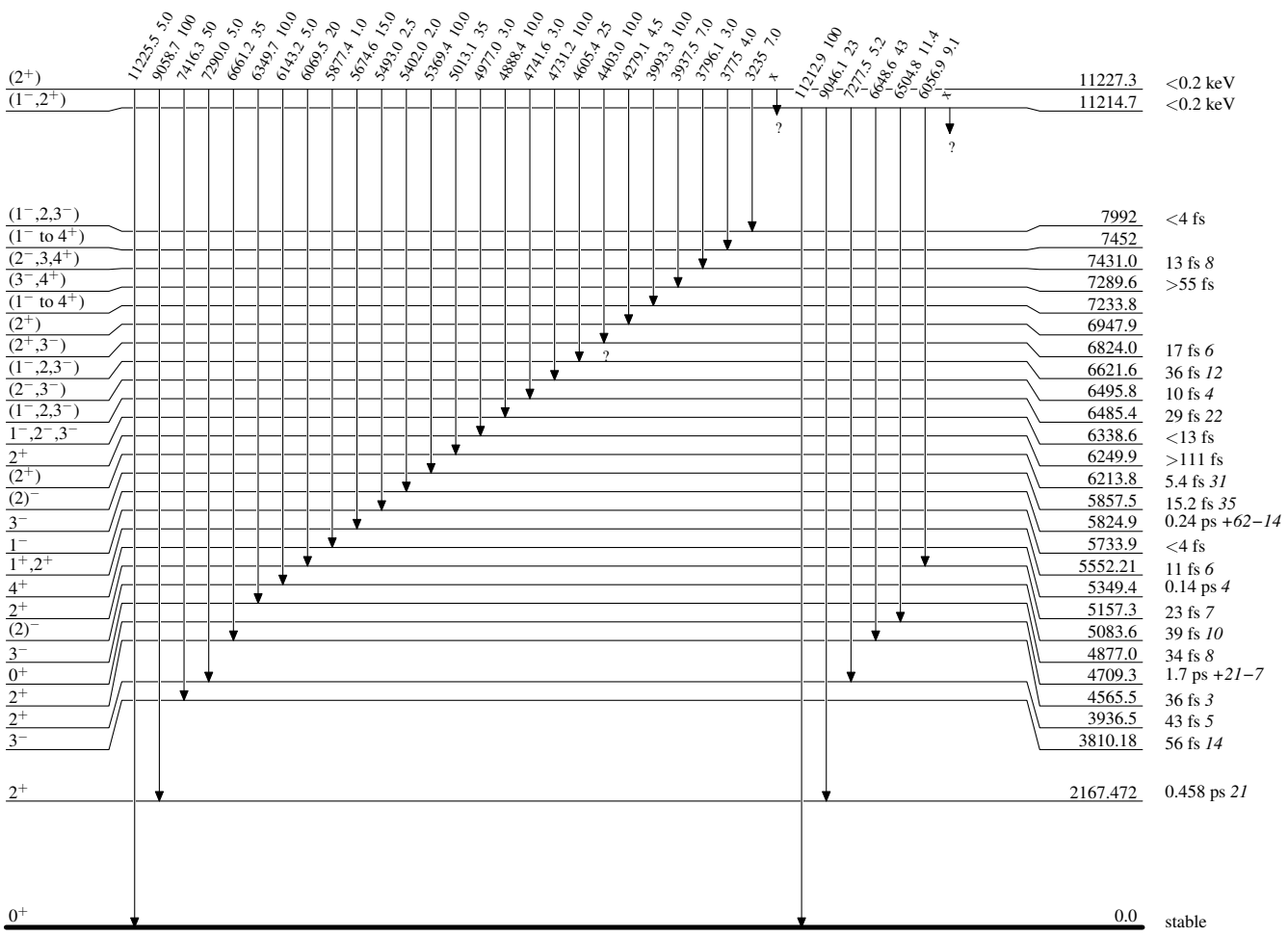


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

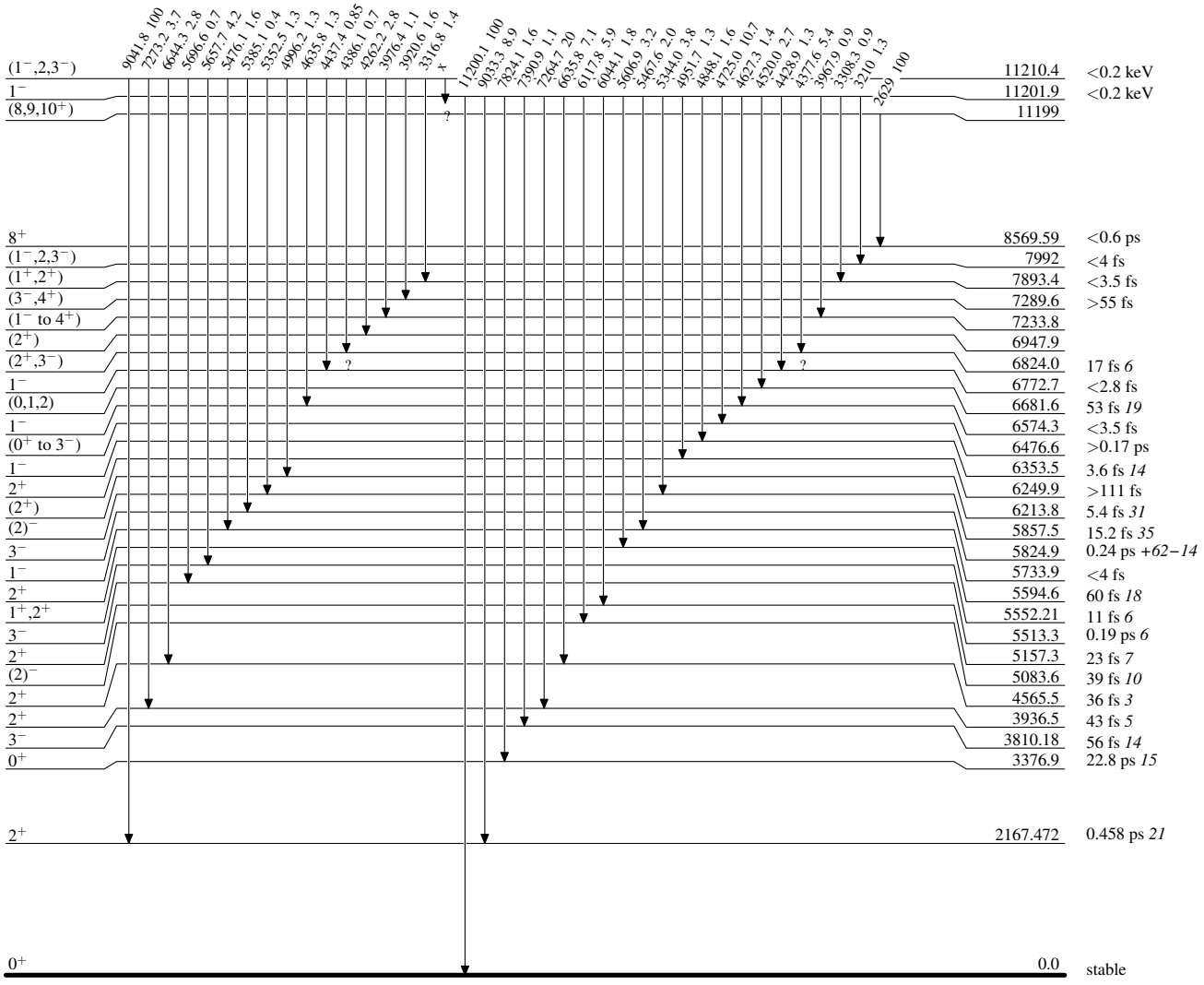


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

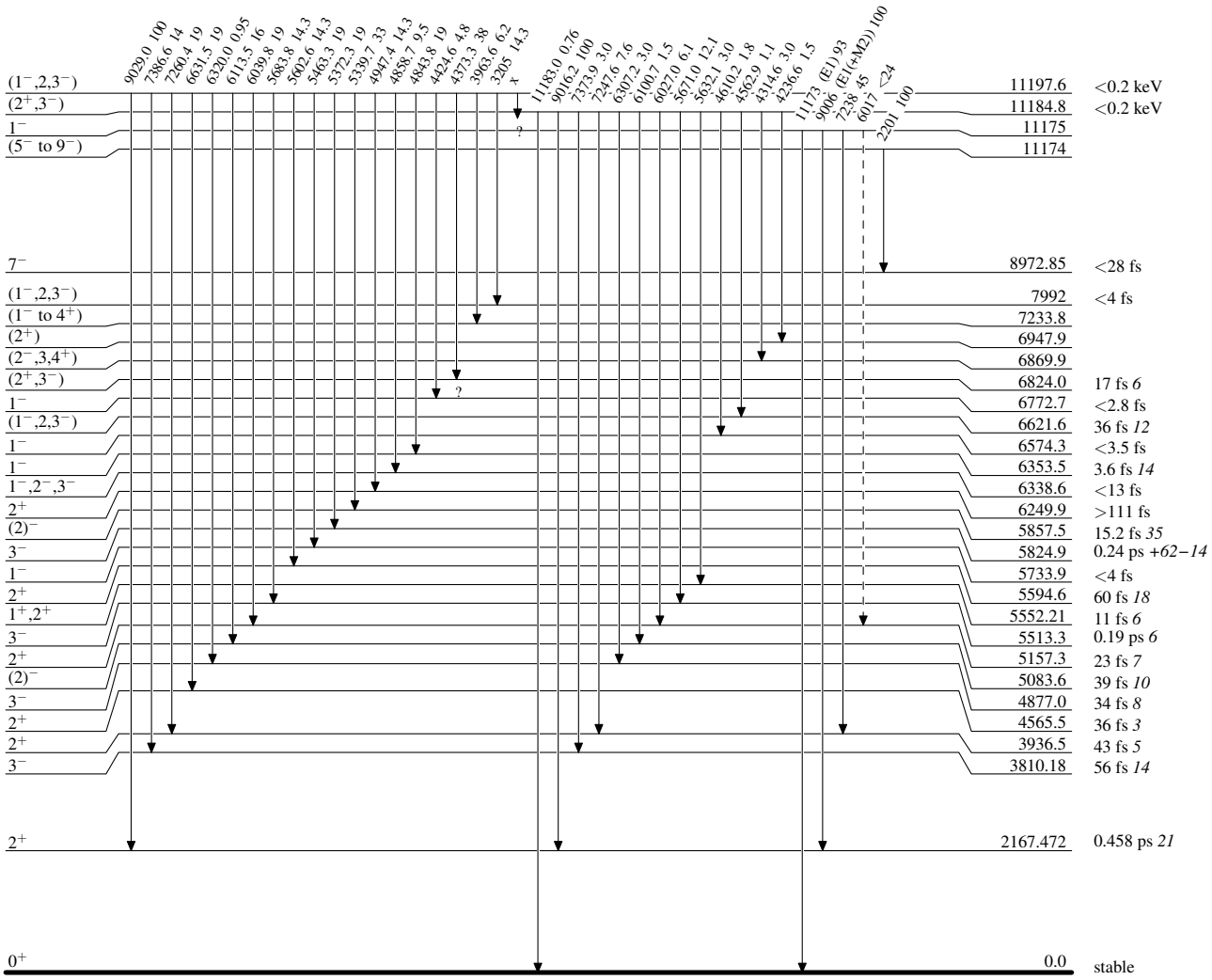
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

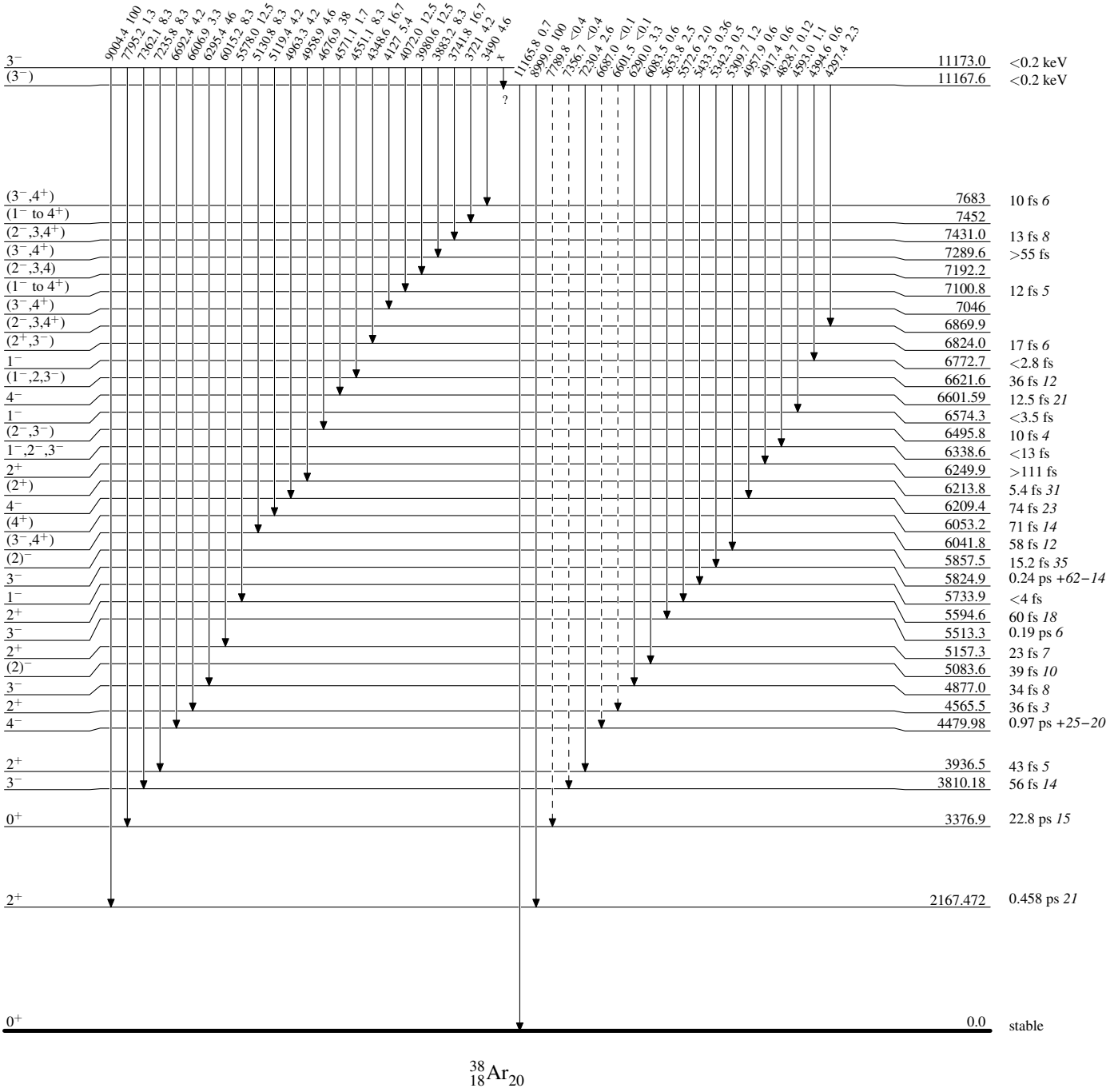
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

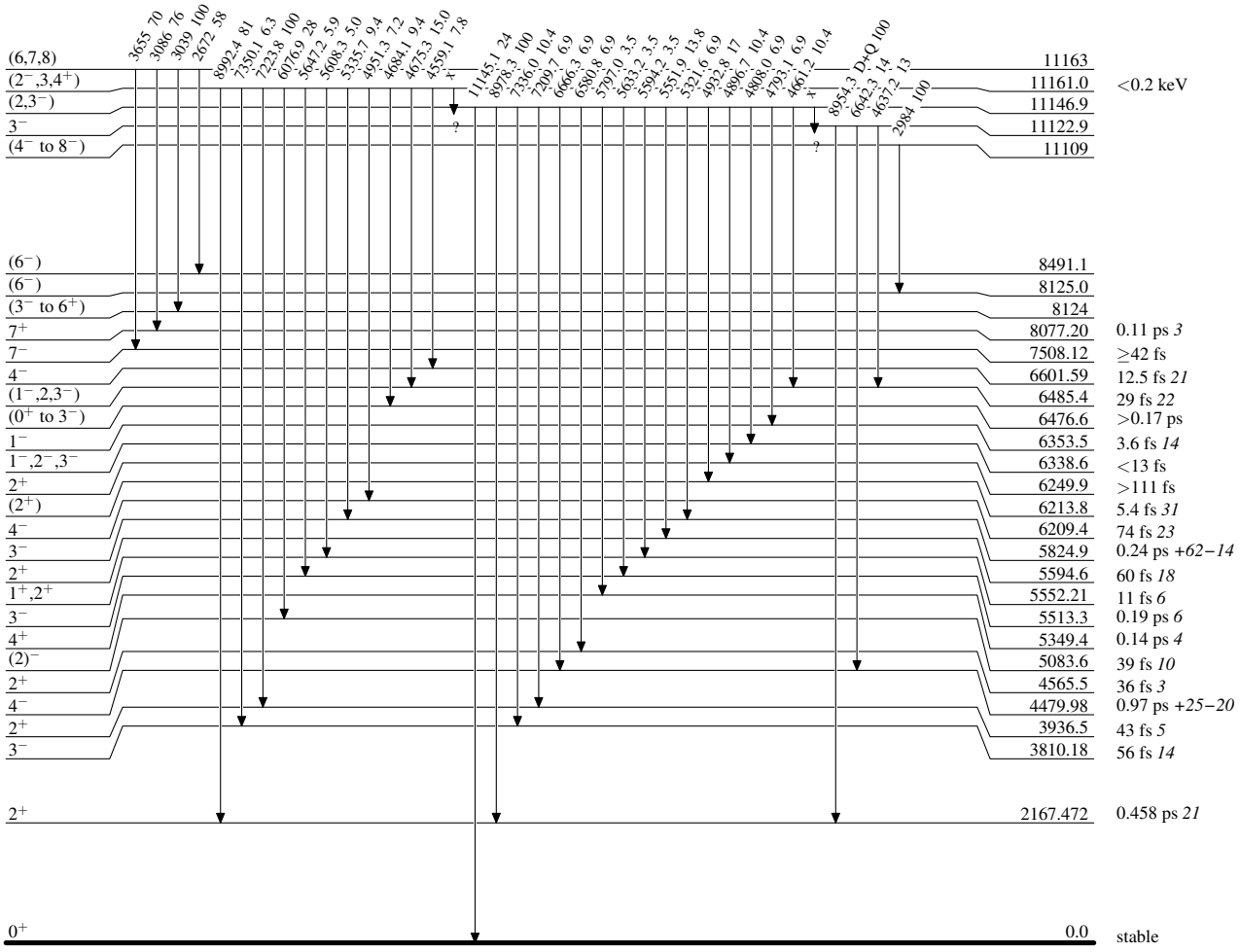


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

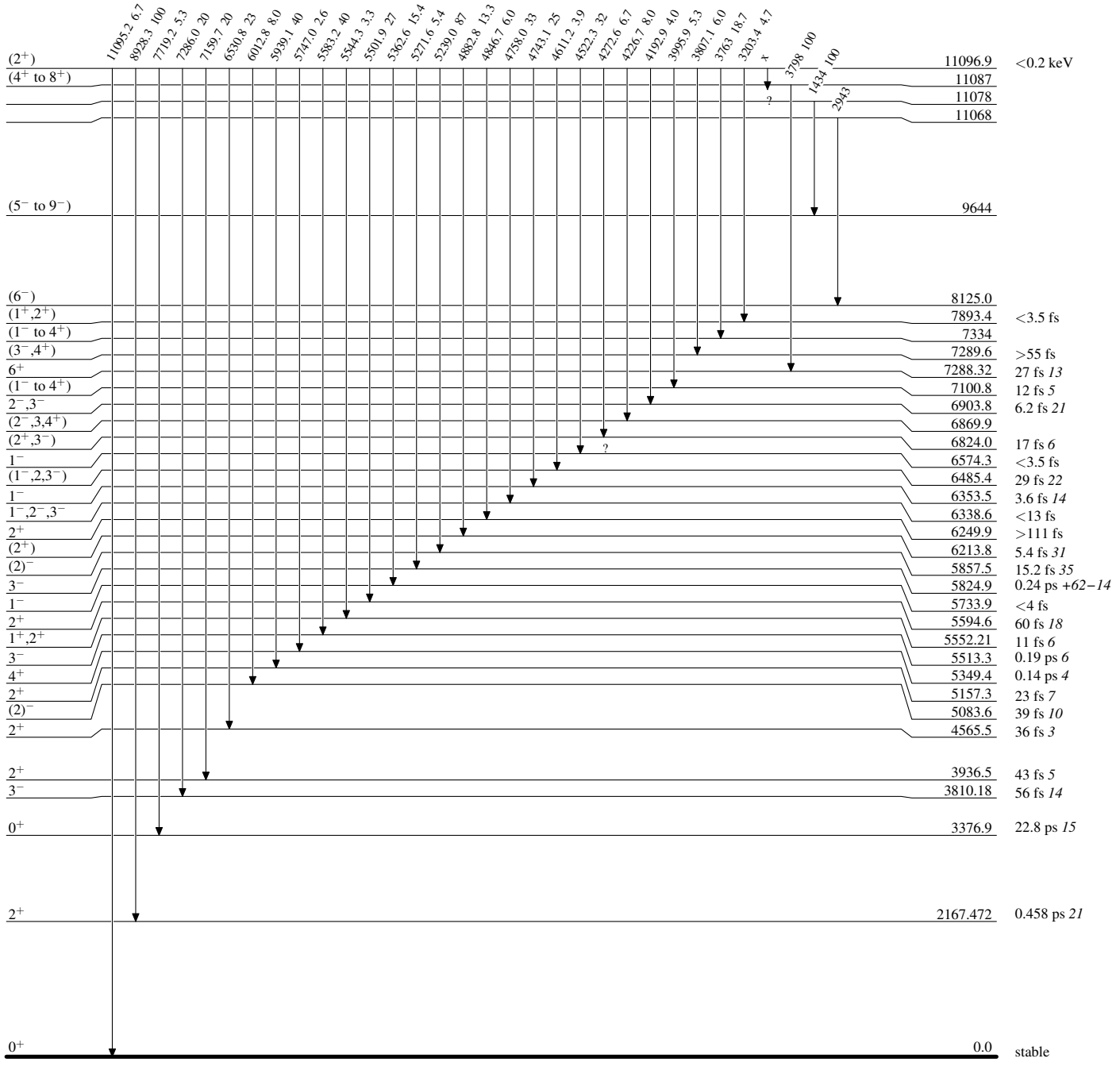


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

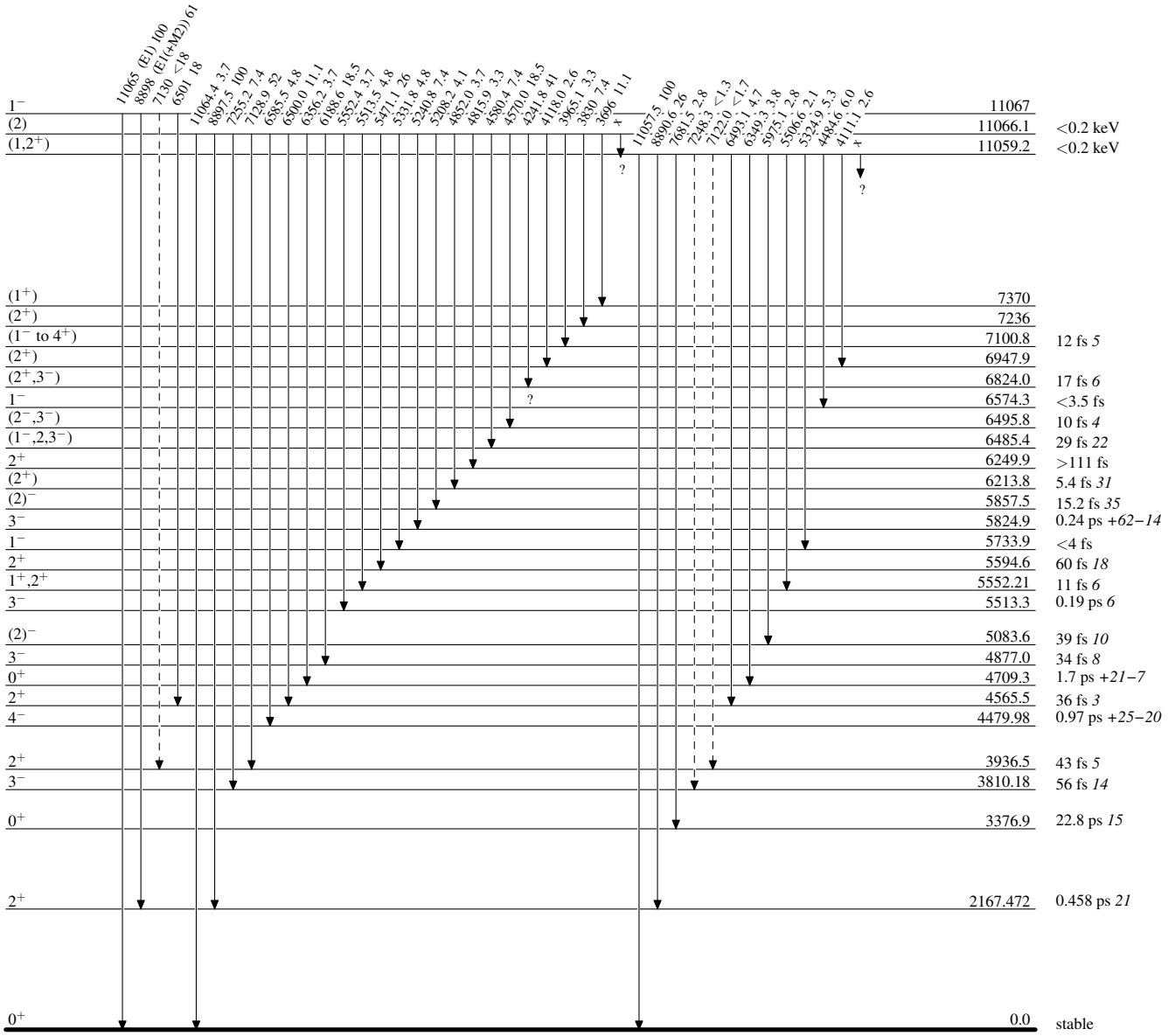
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

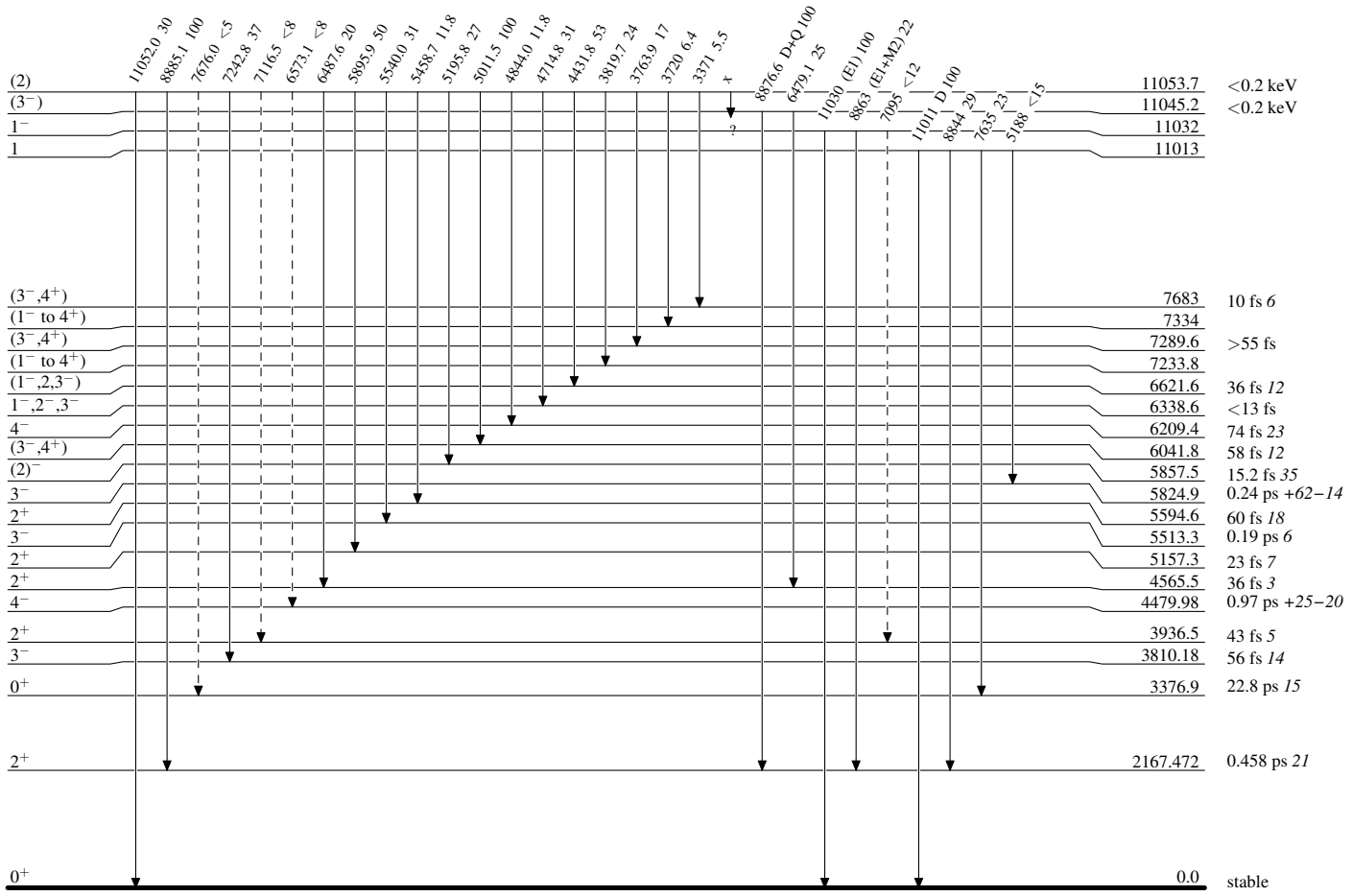
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

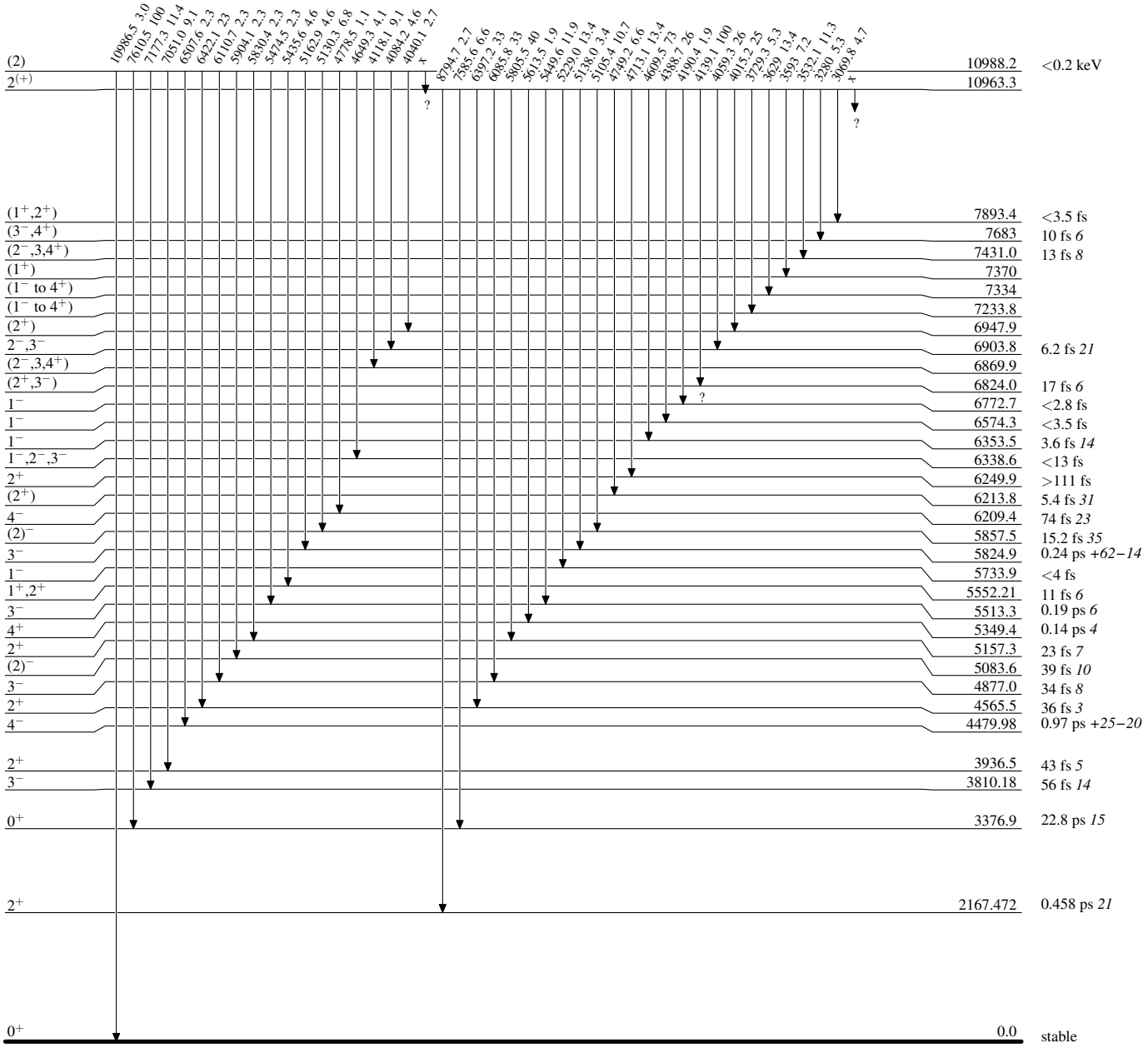


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

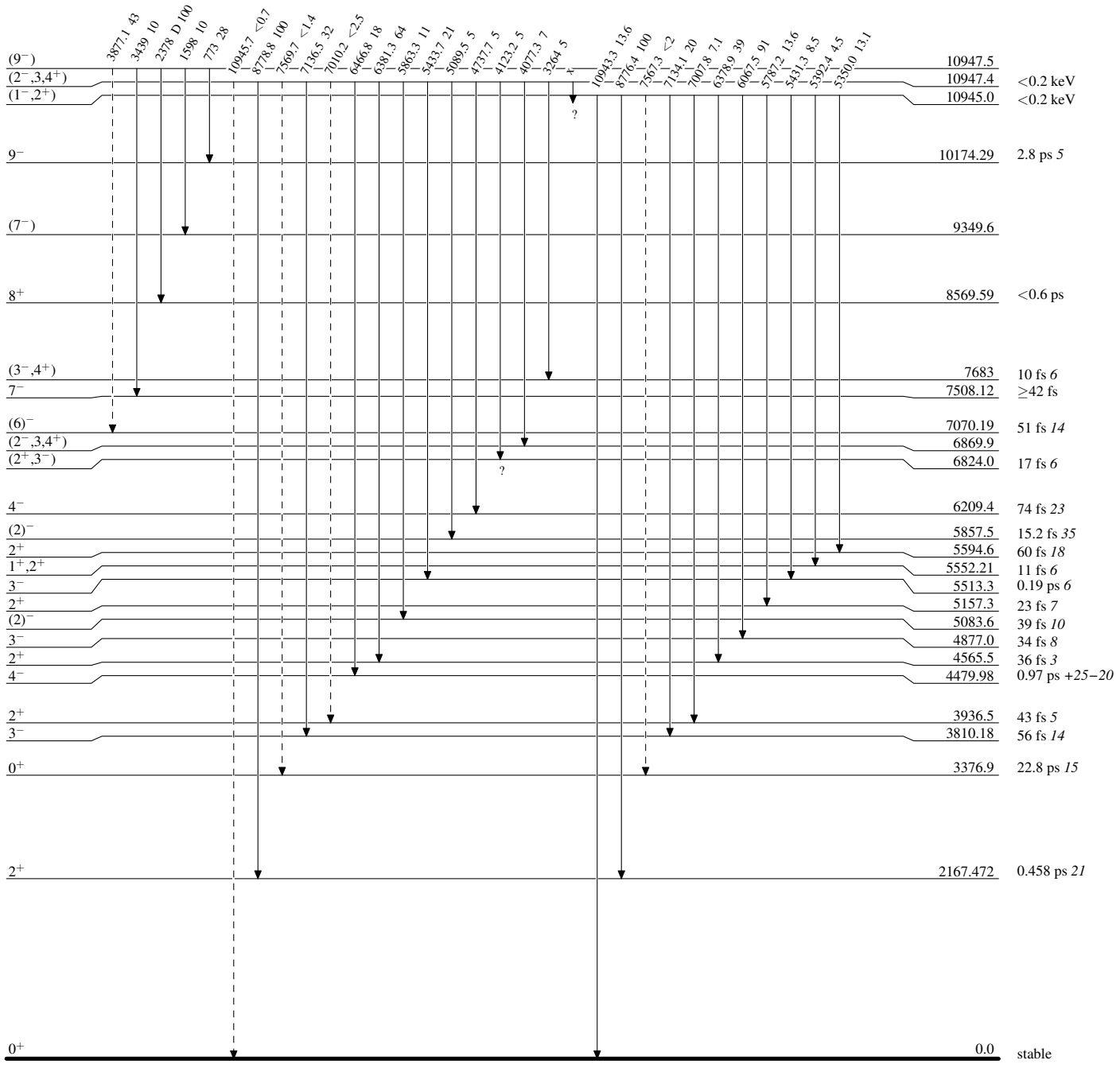
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

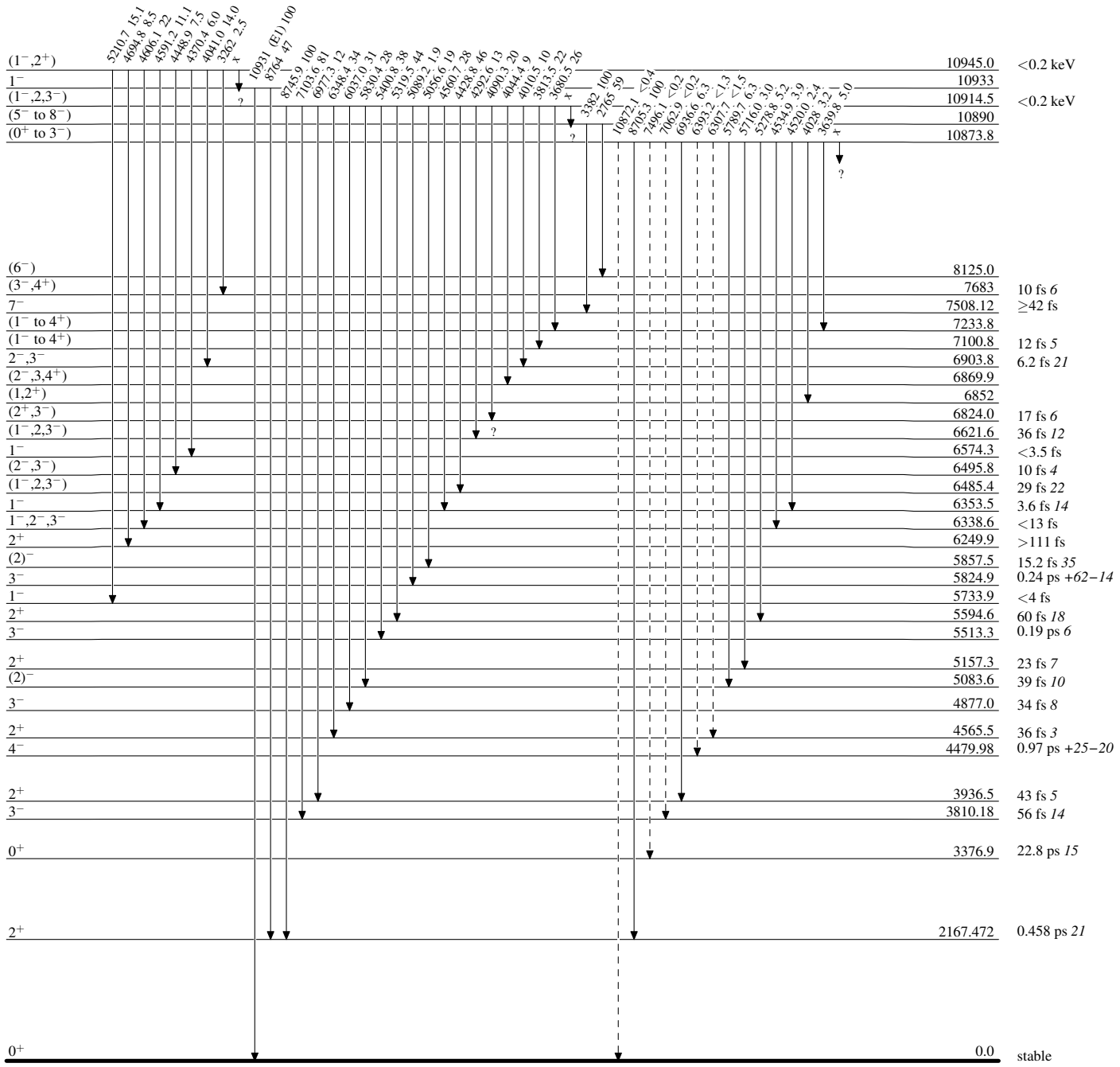
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

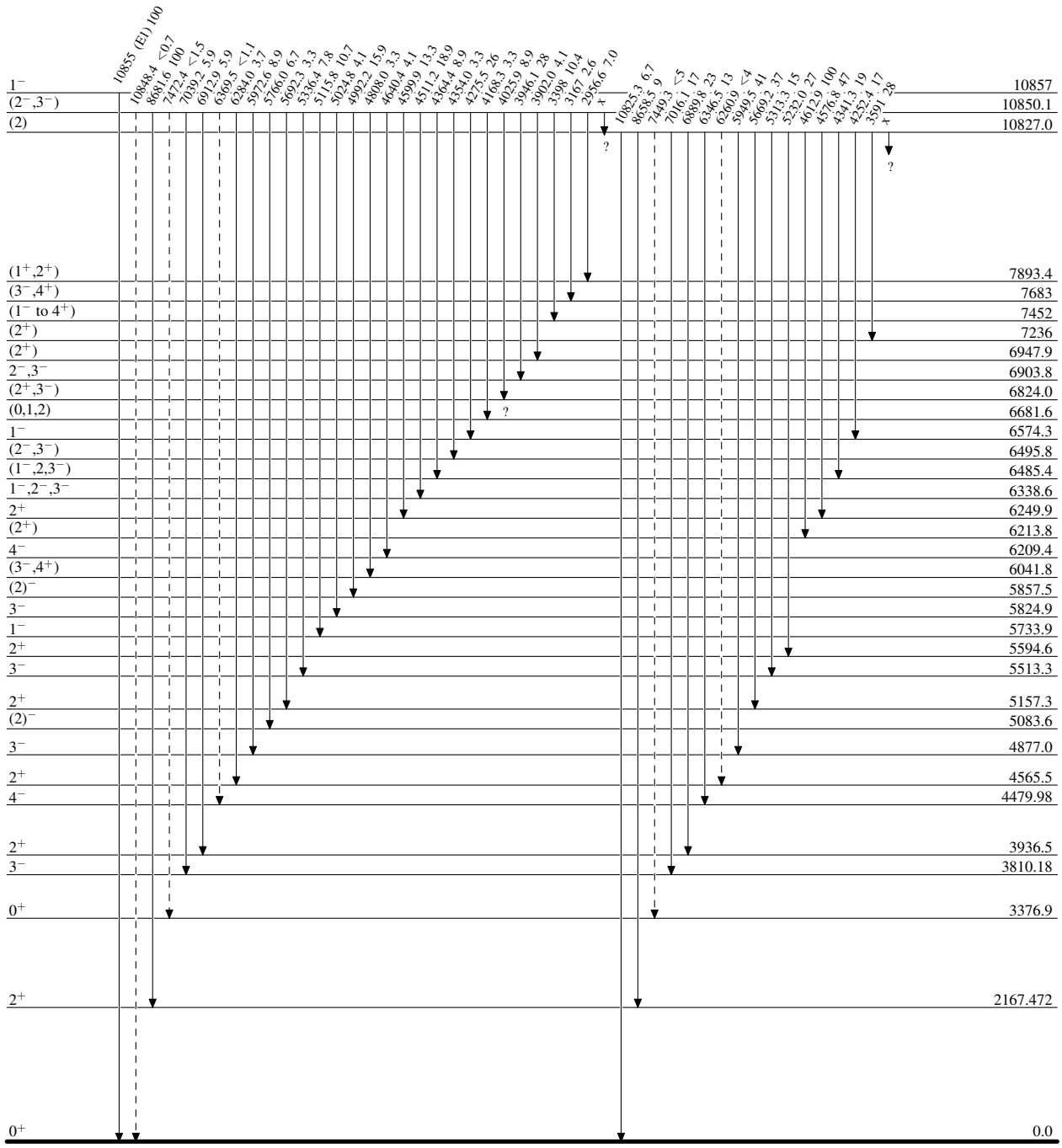
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

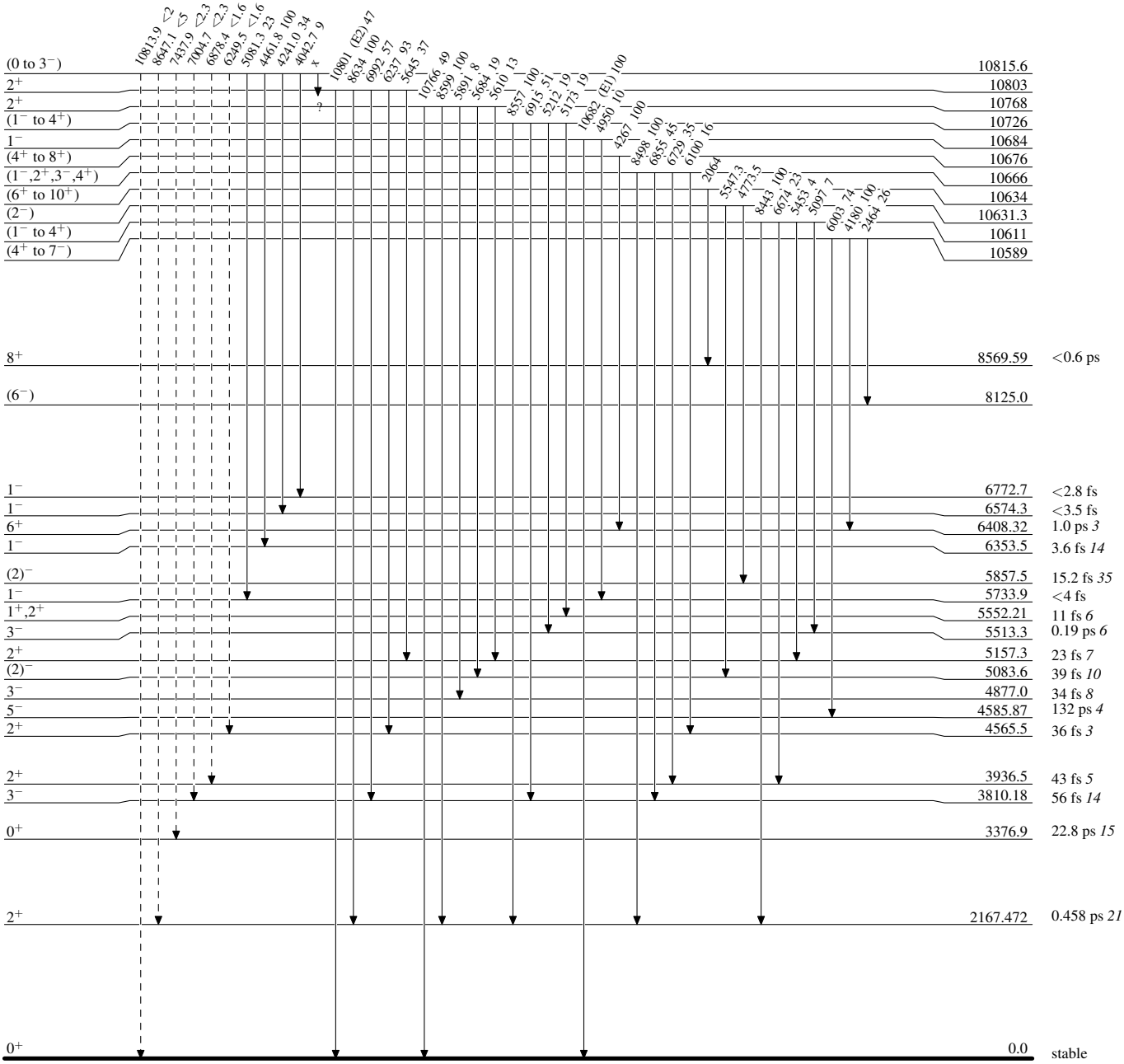
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

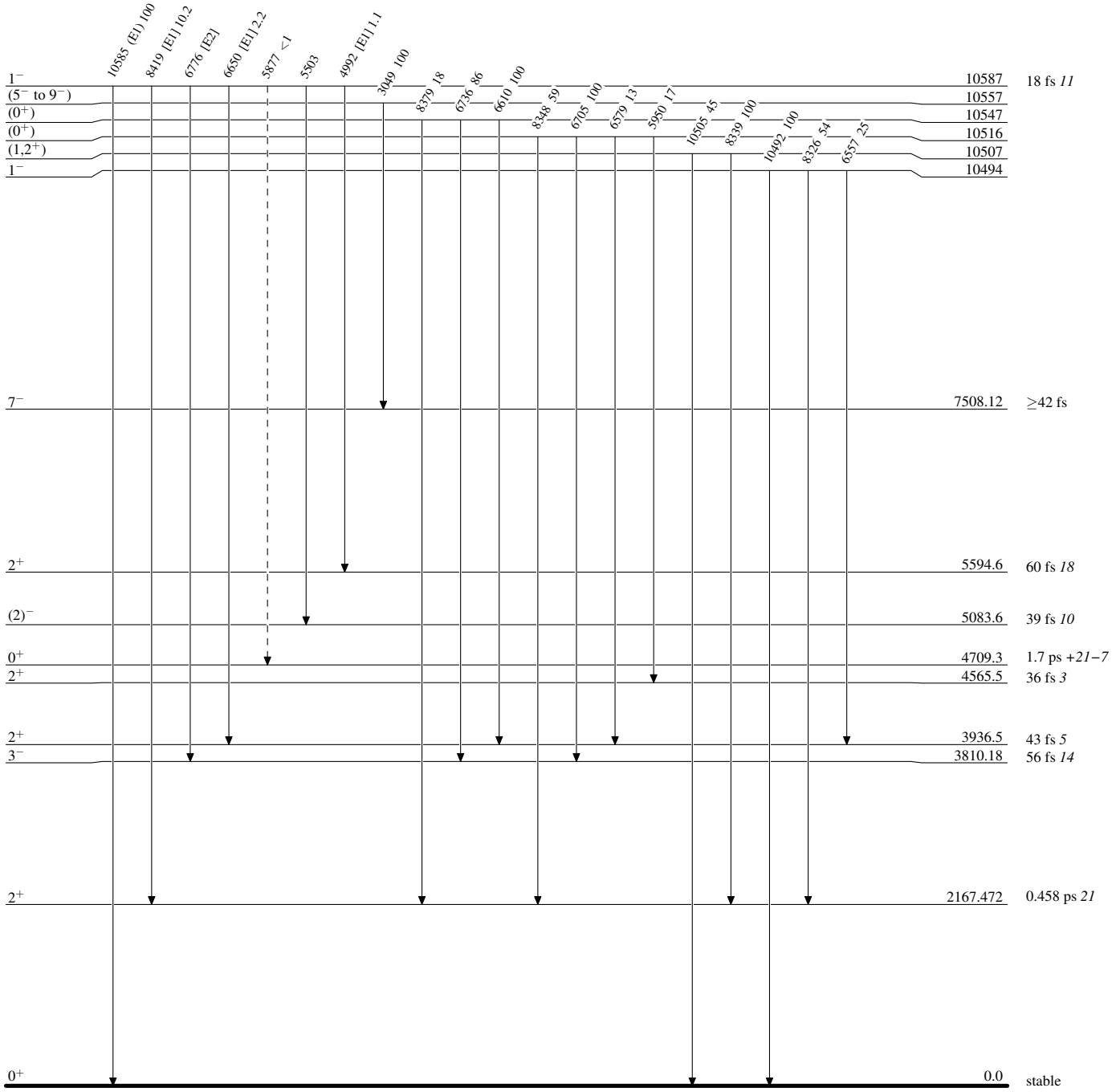
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

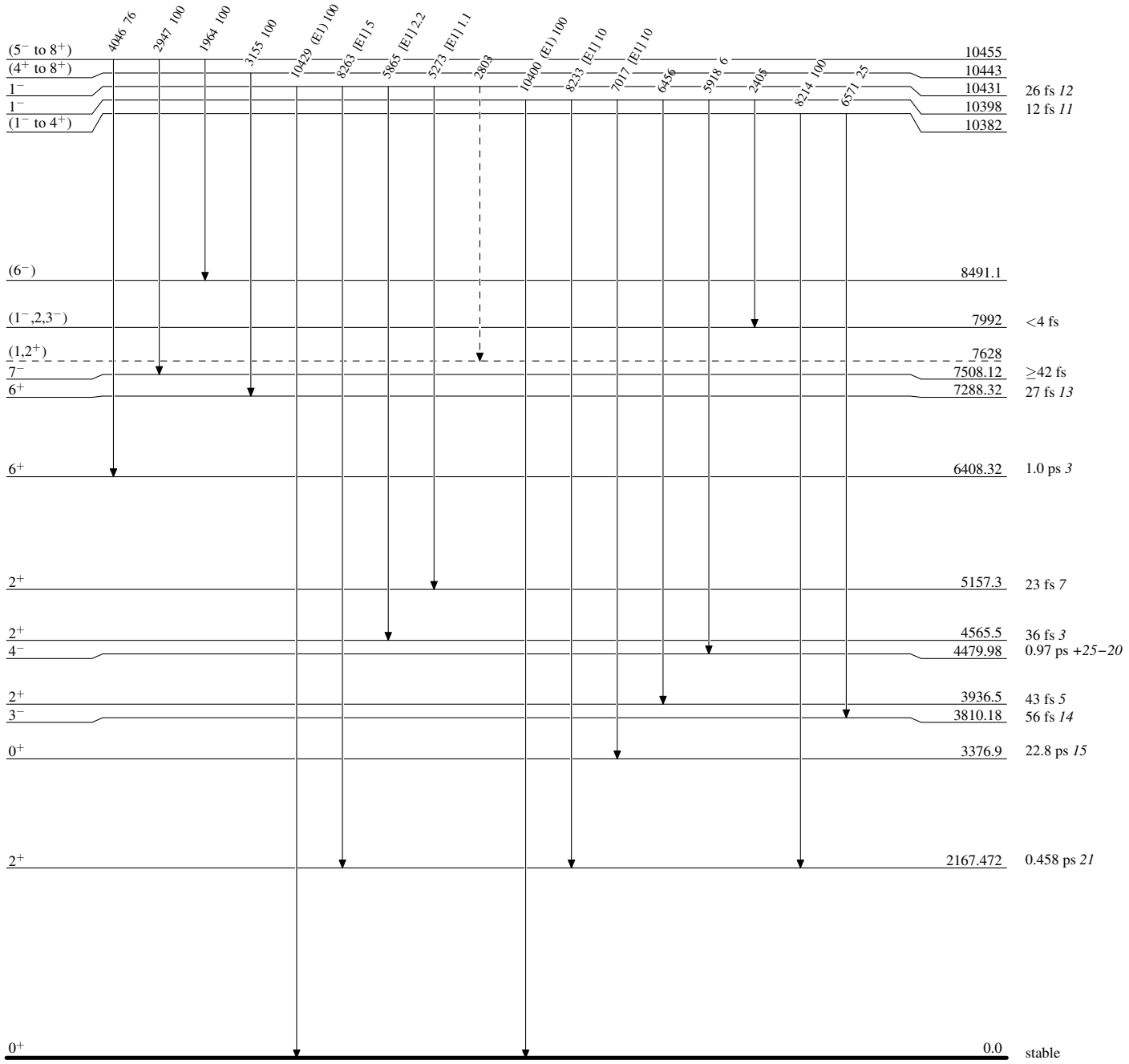
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

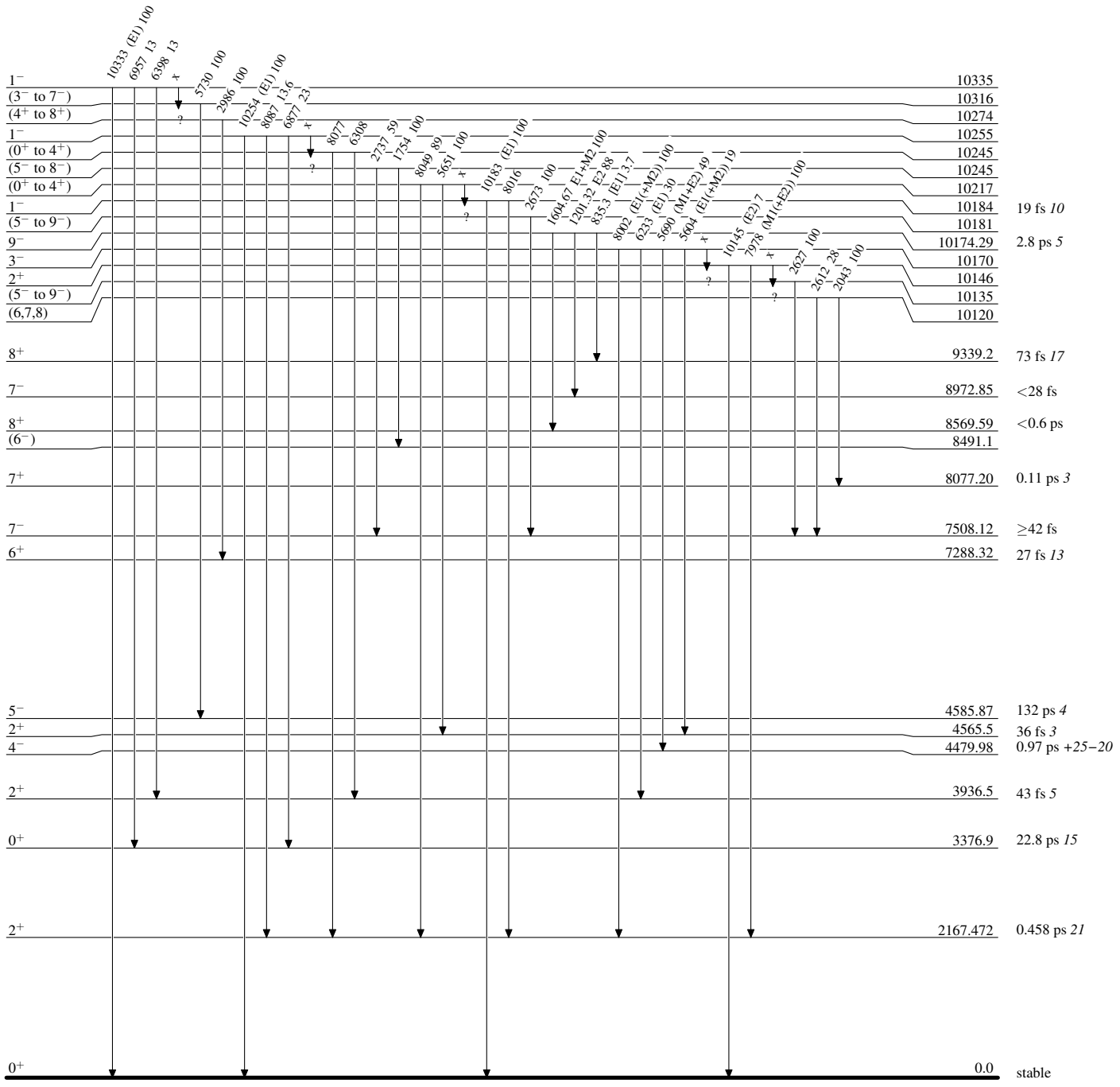


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

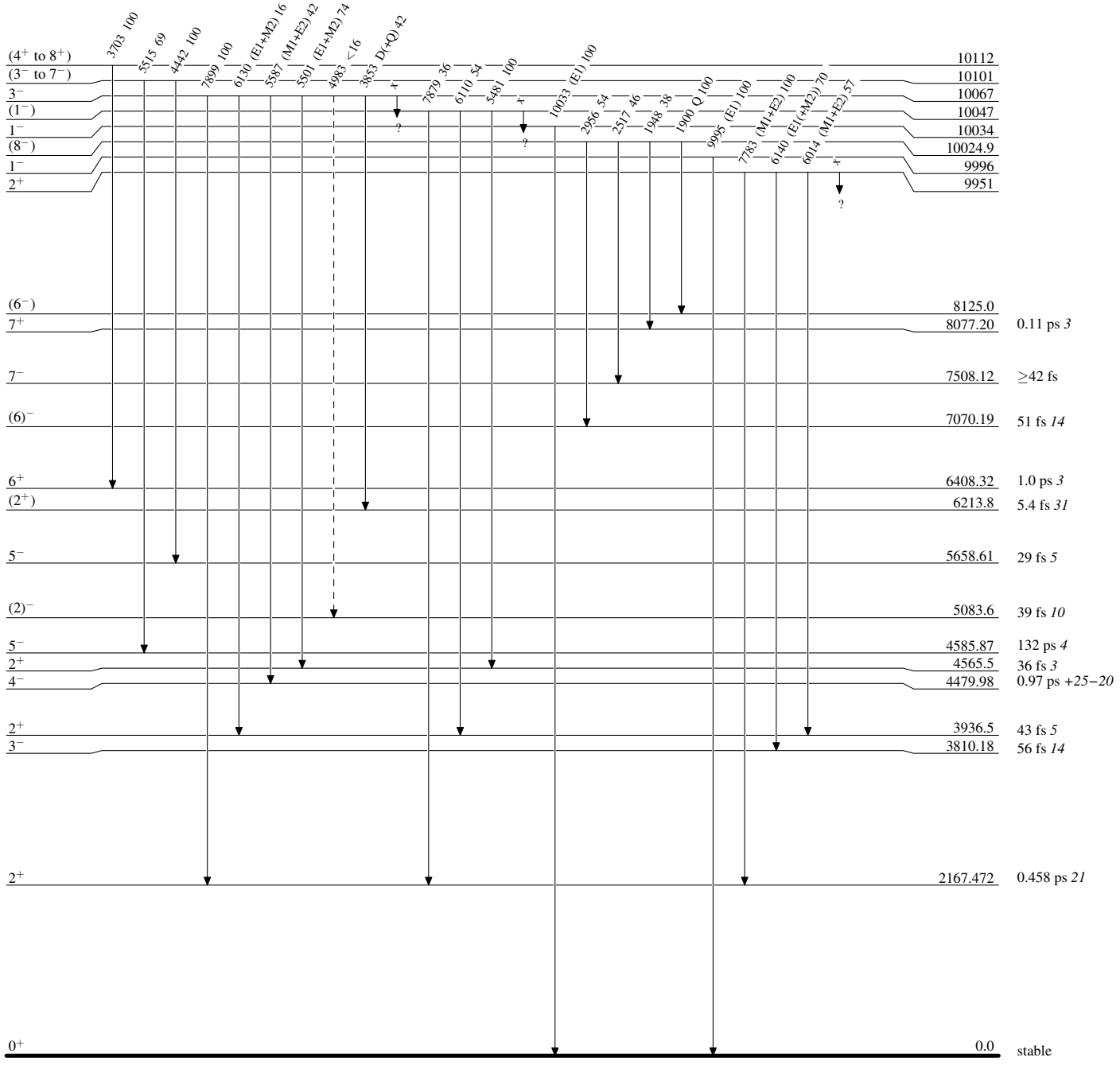
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

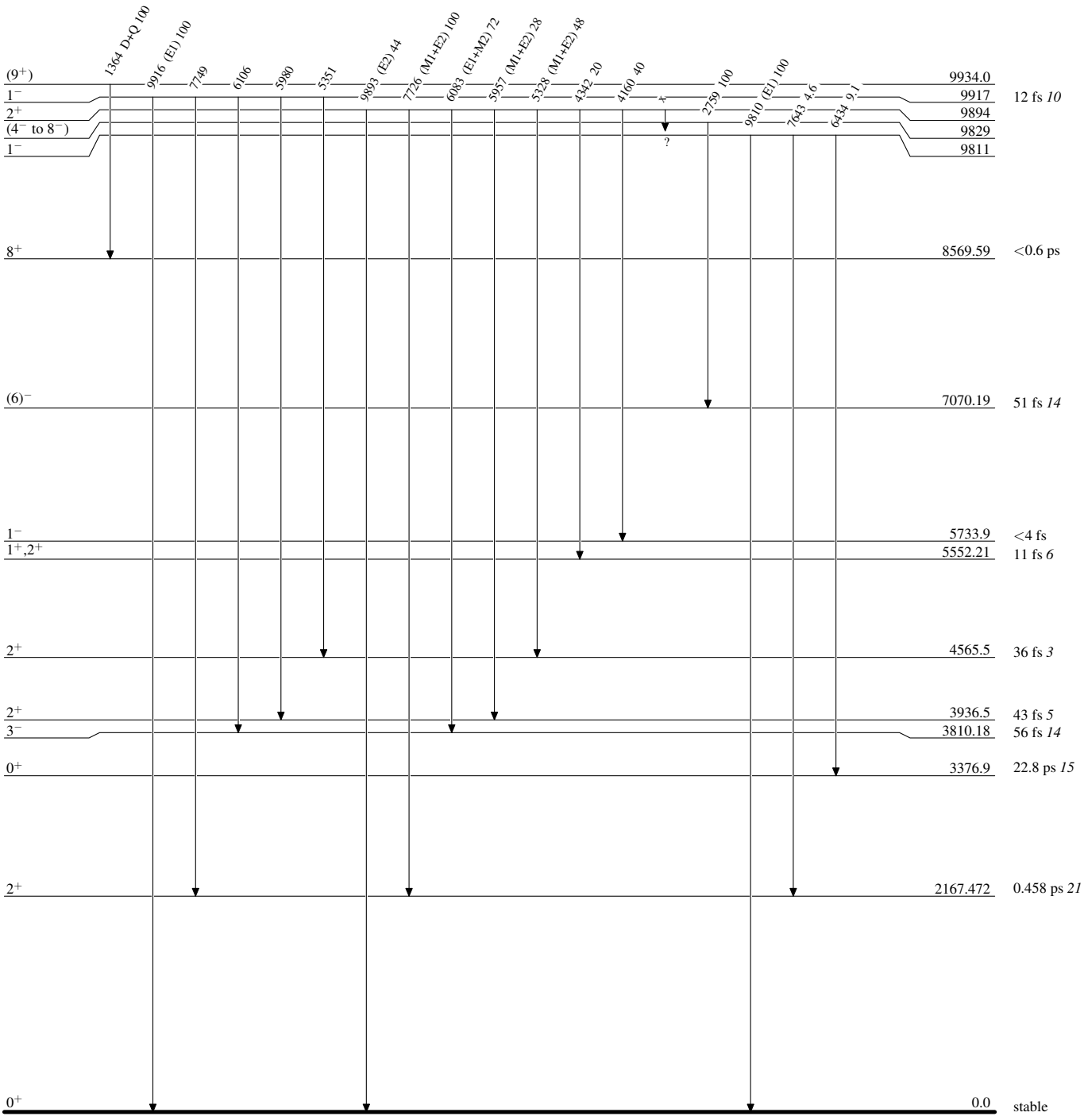


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

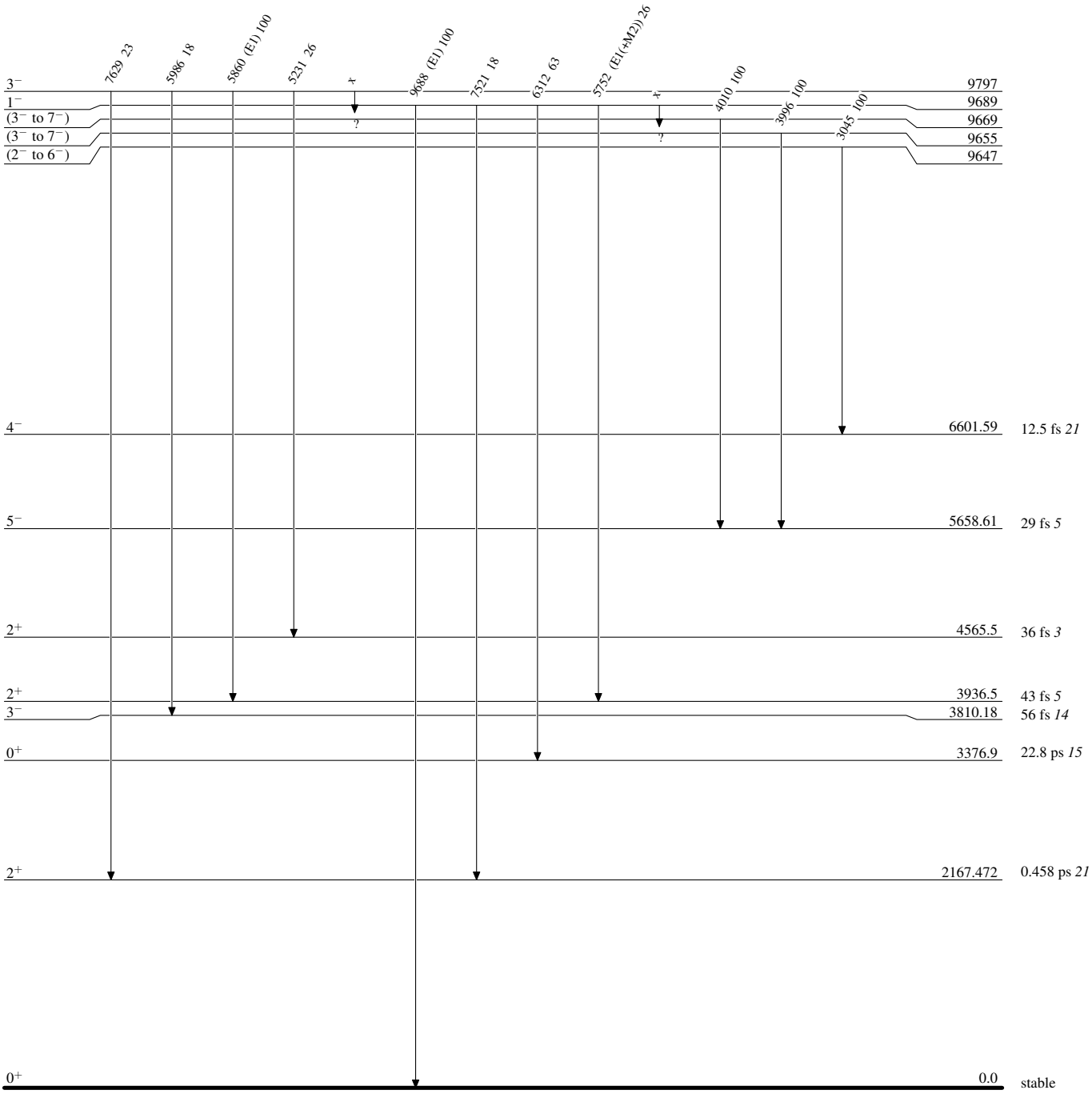


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

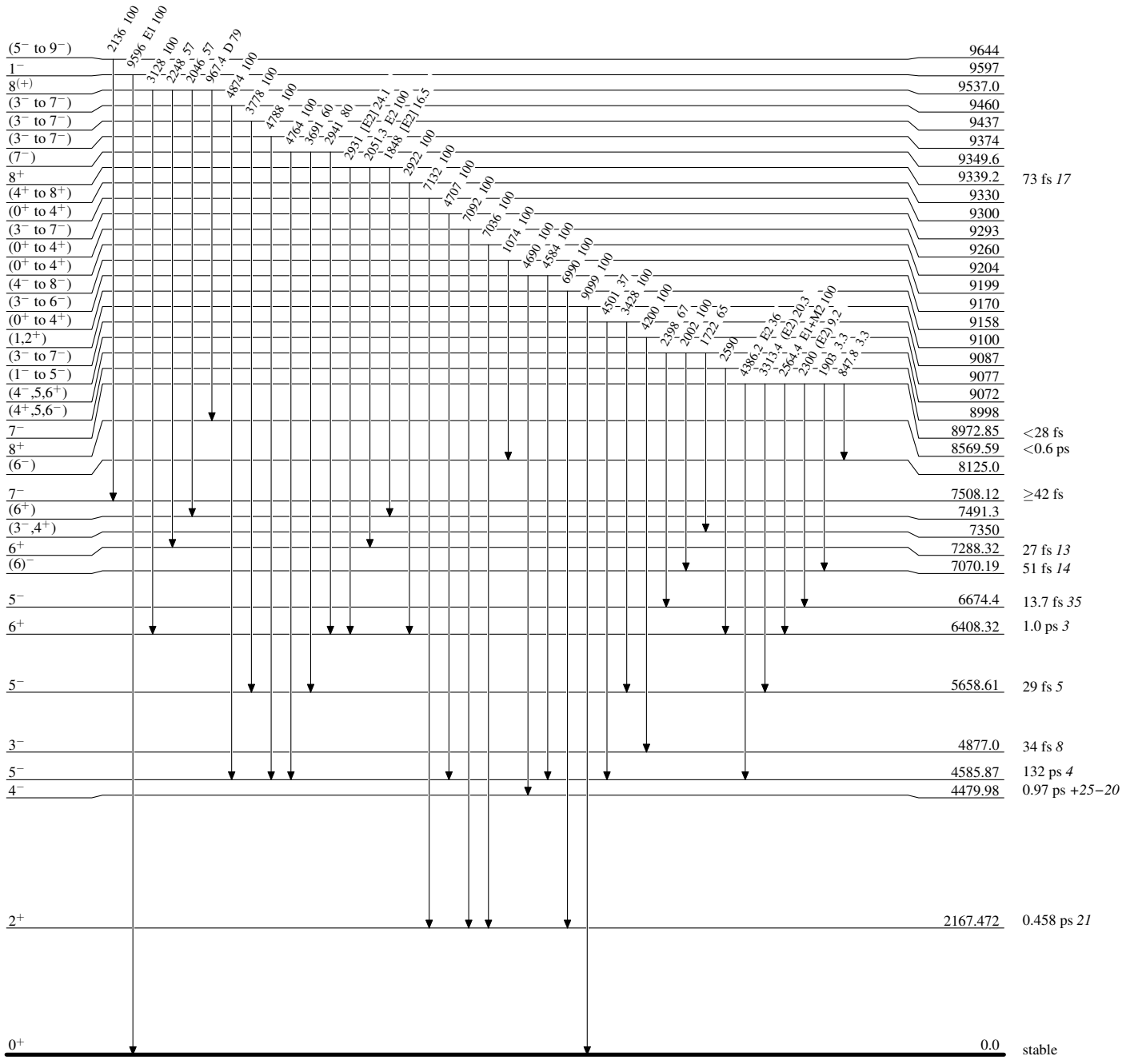


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

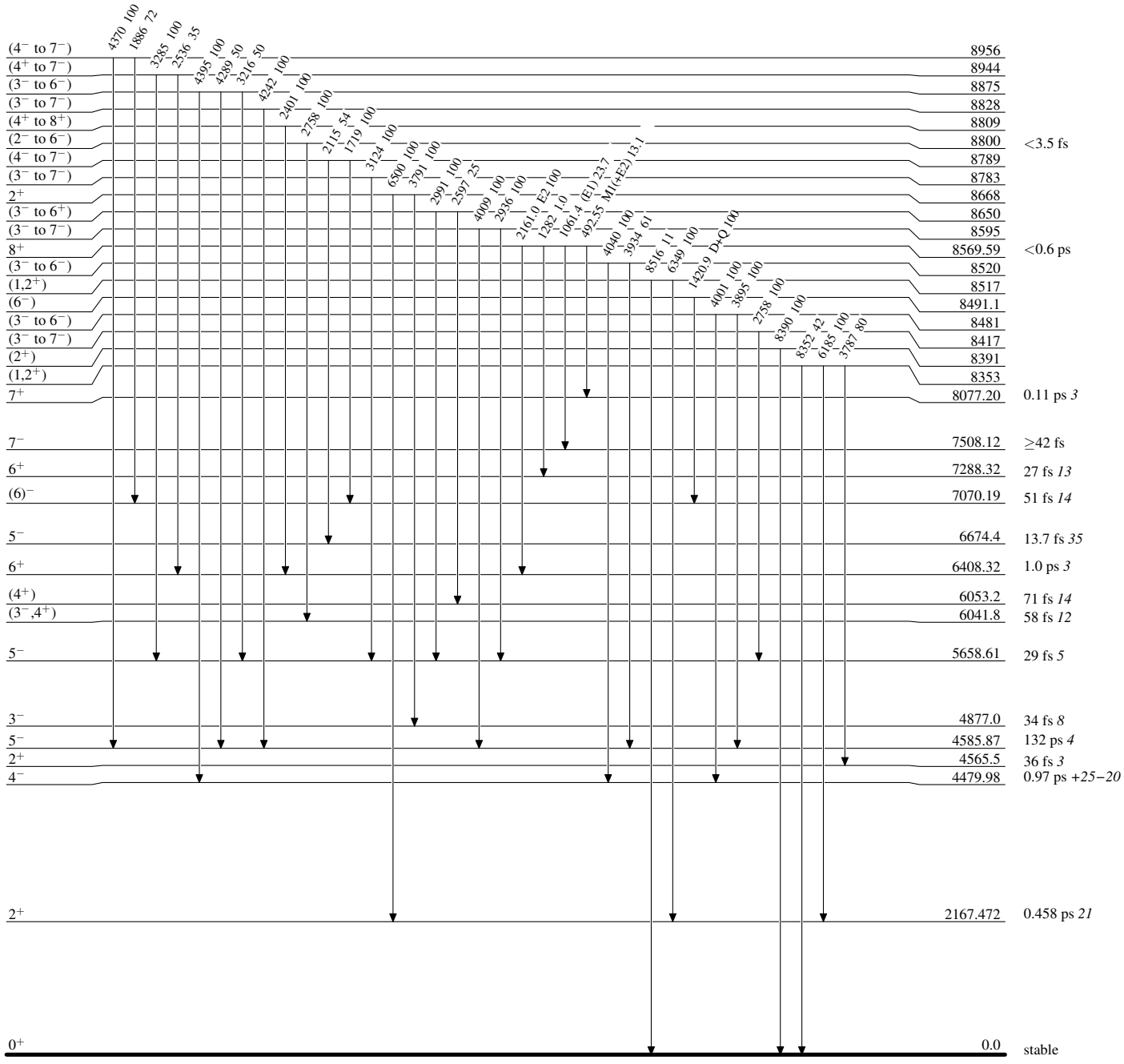


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

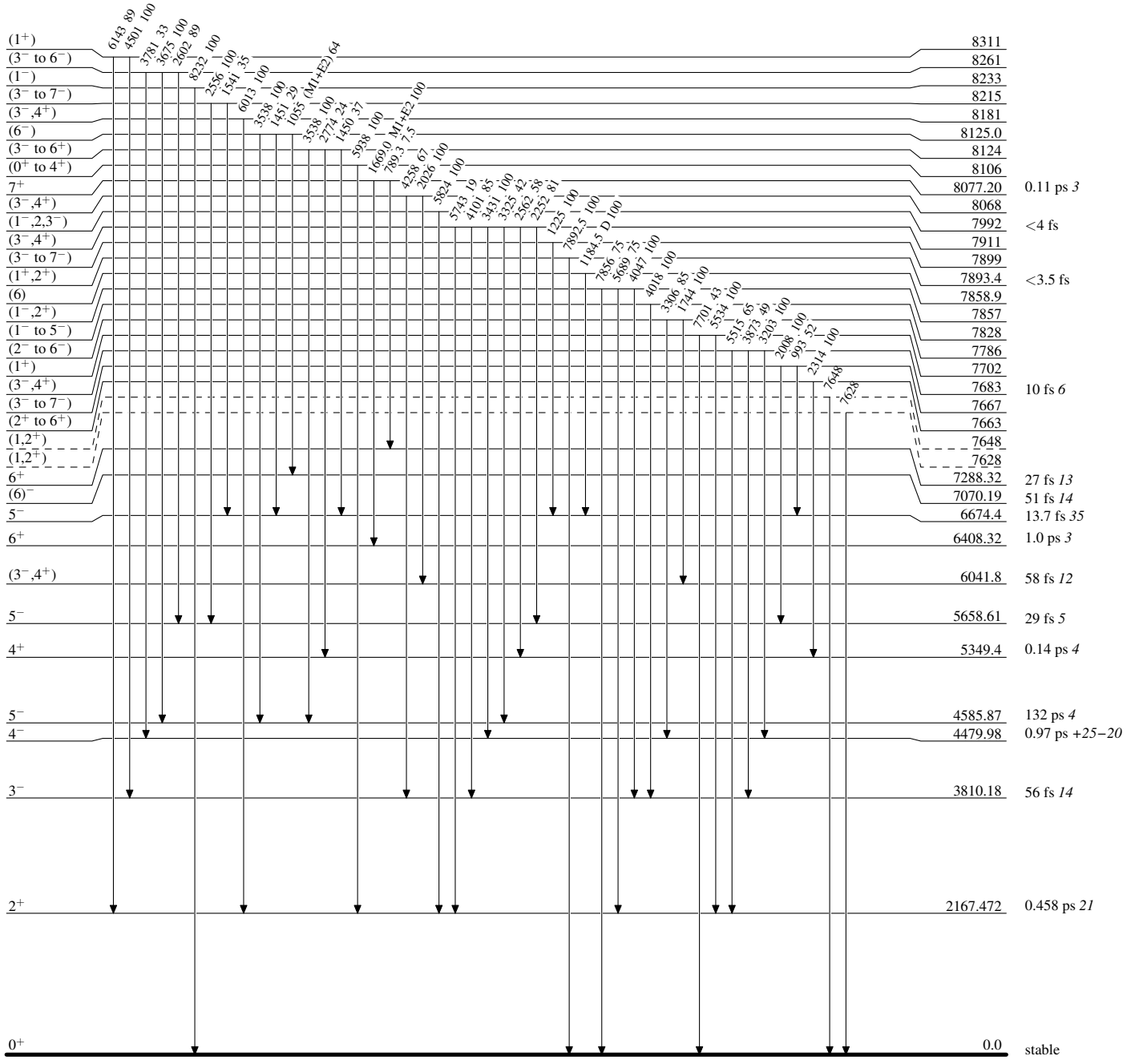


$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{38}_{18}Ar_{20}$

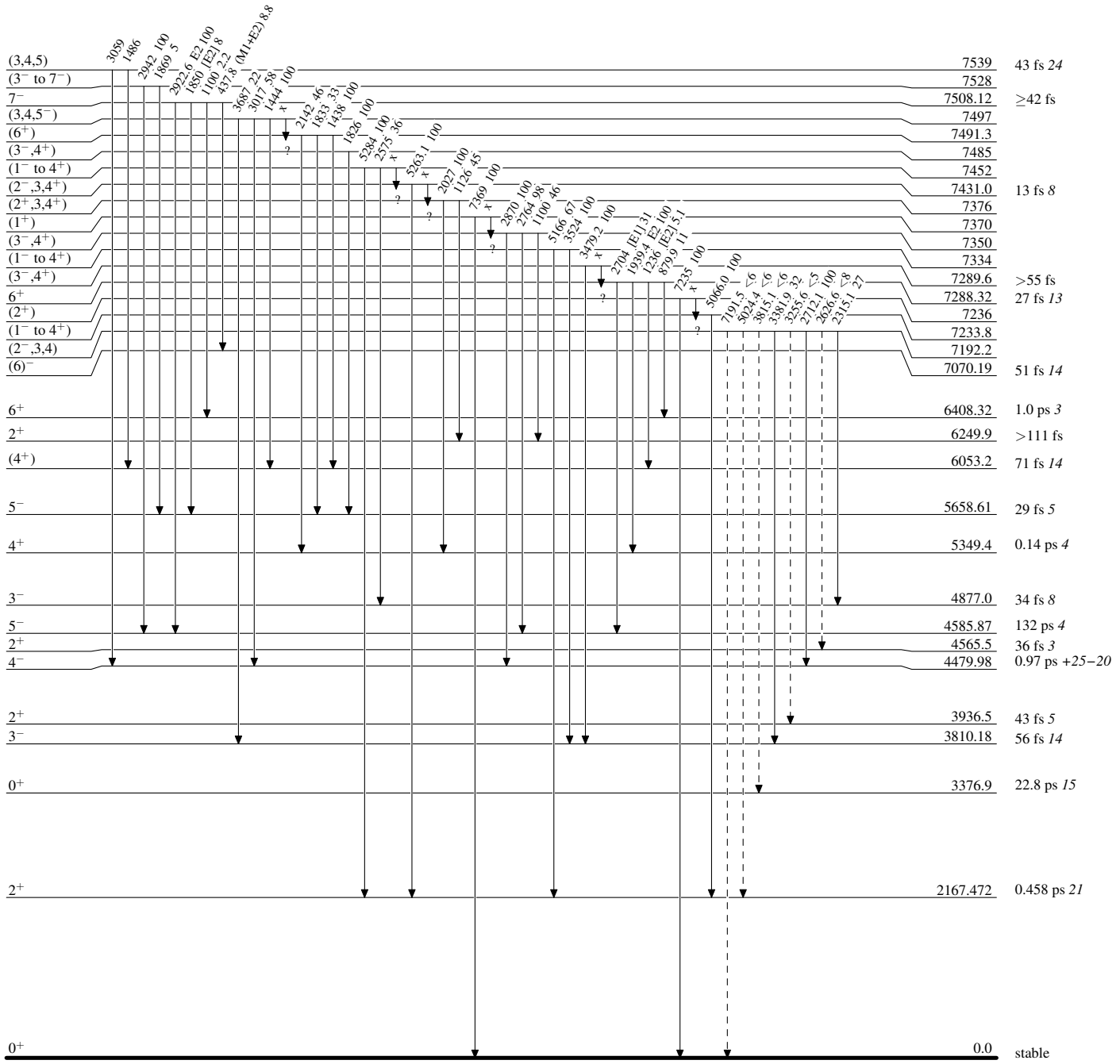
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

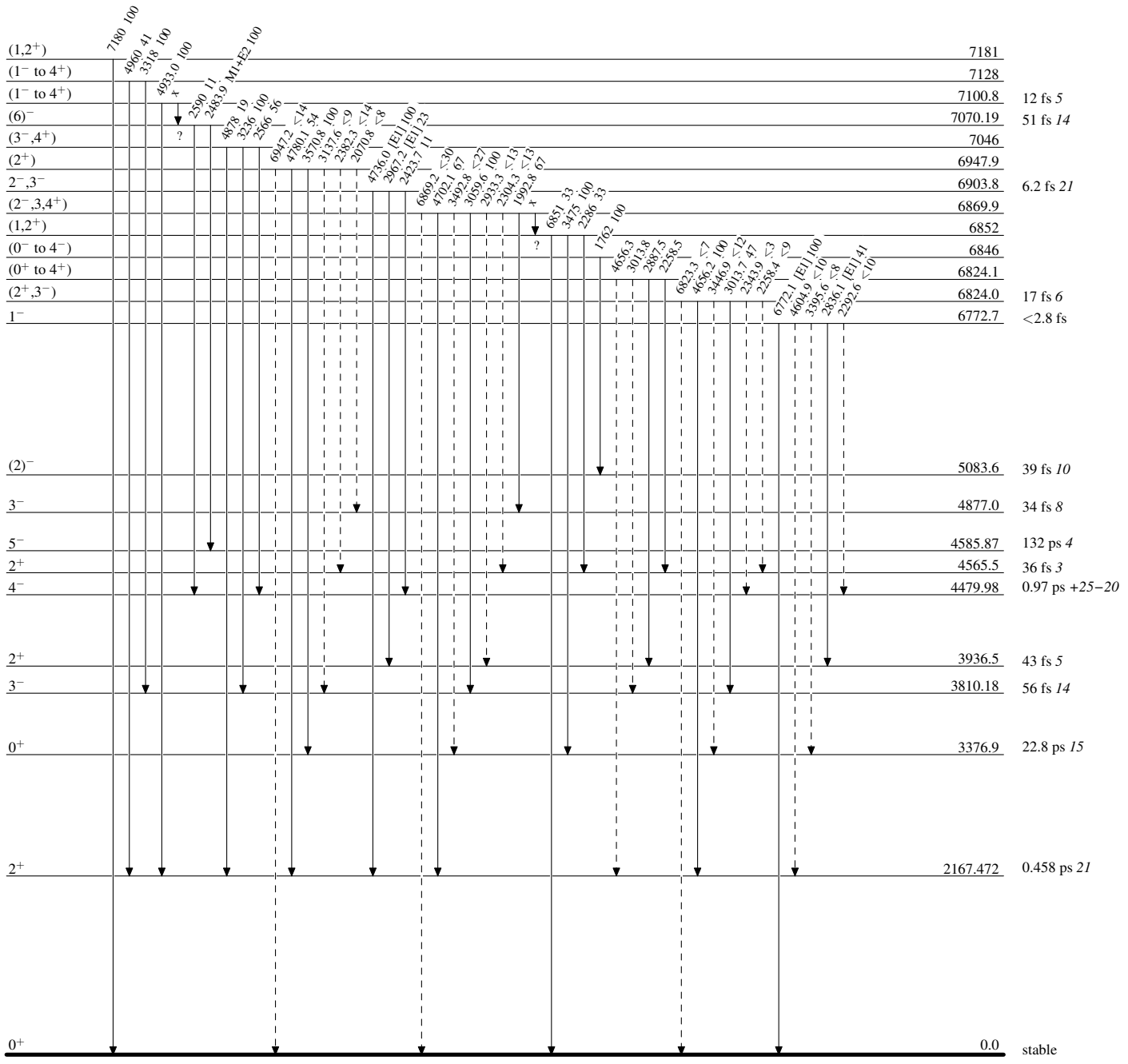
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

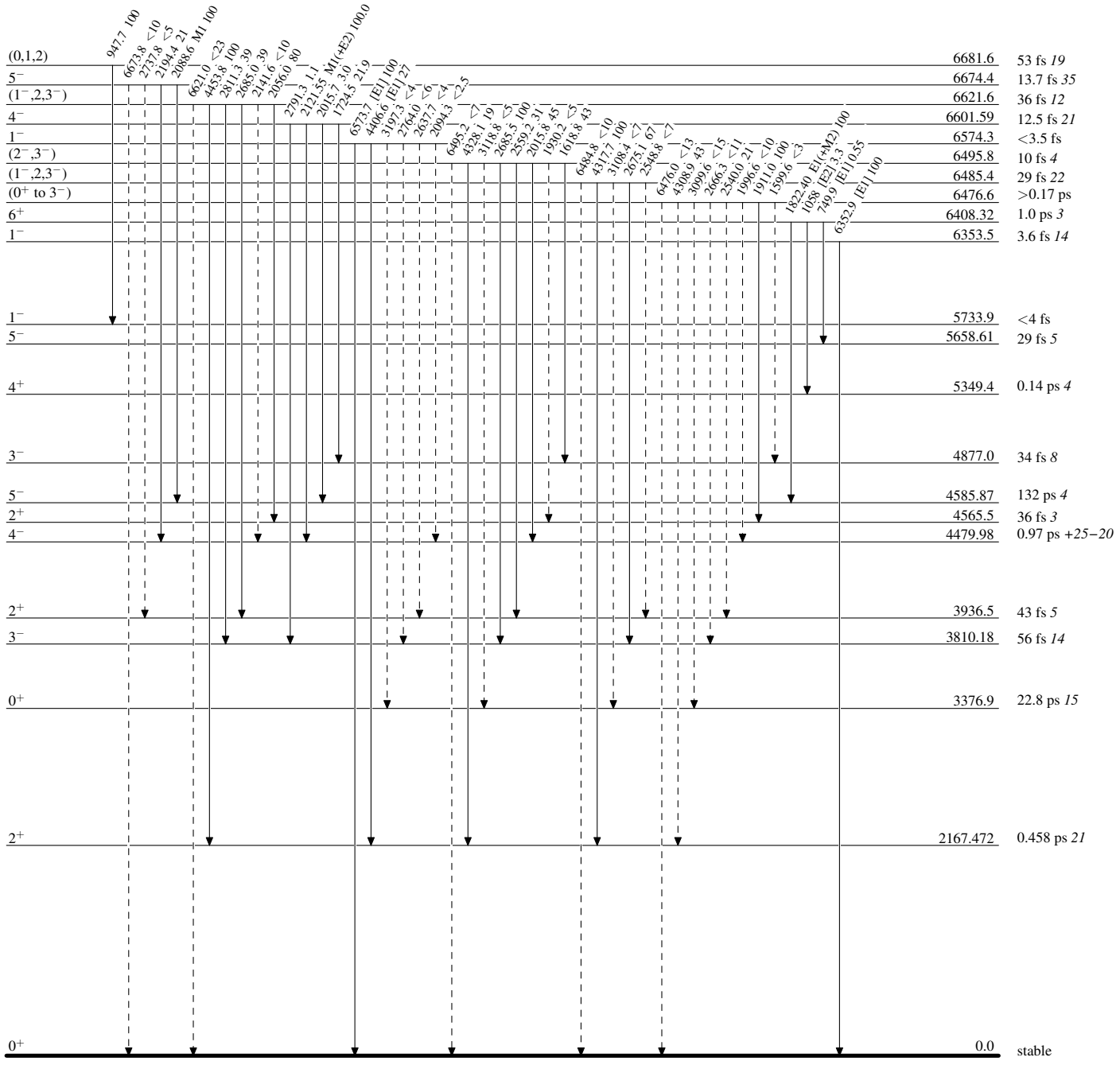
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

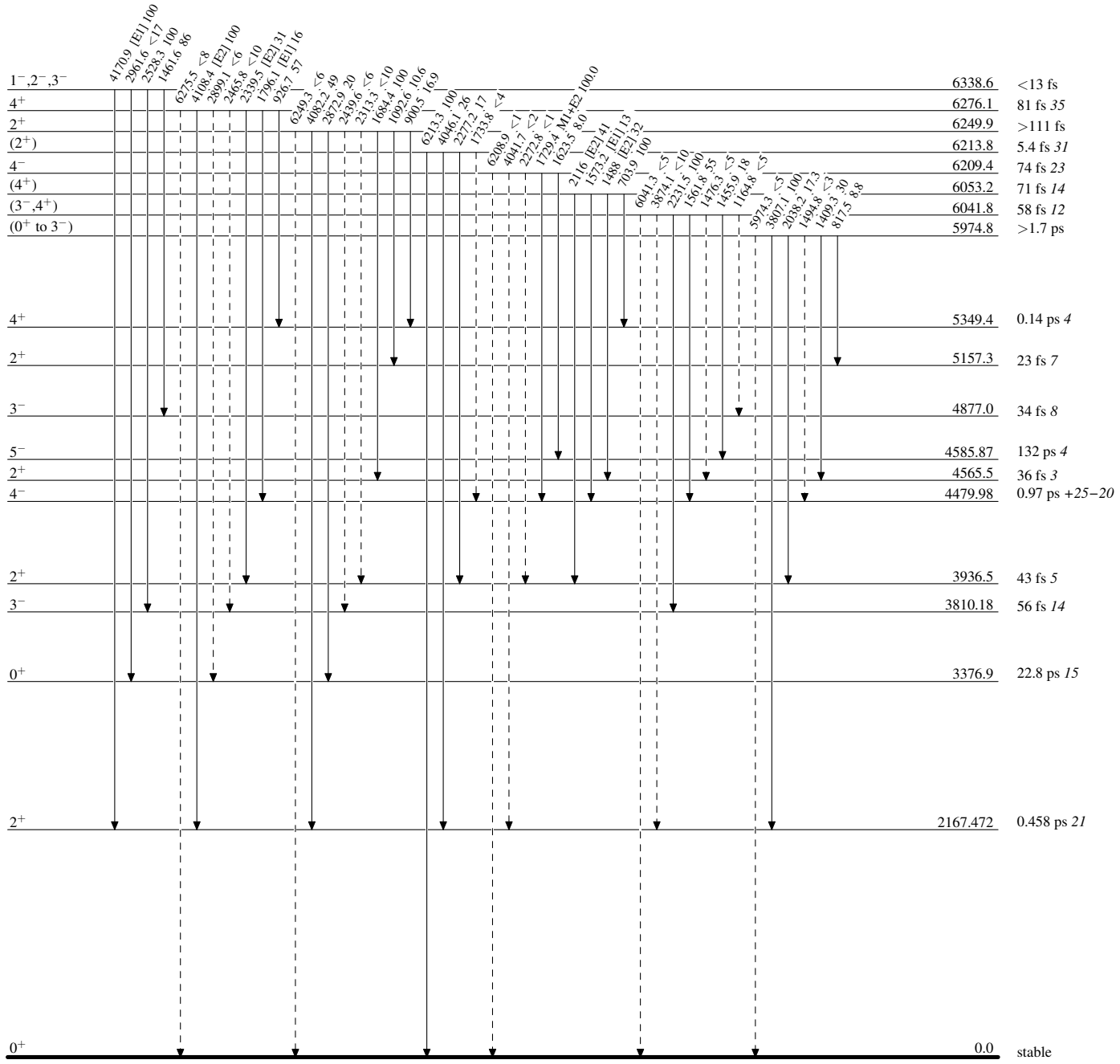
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



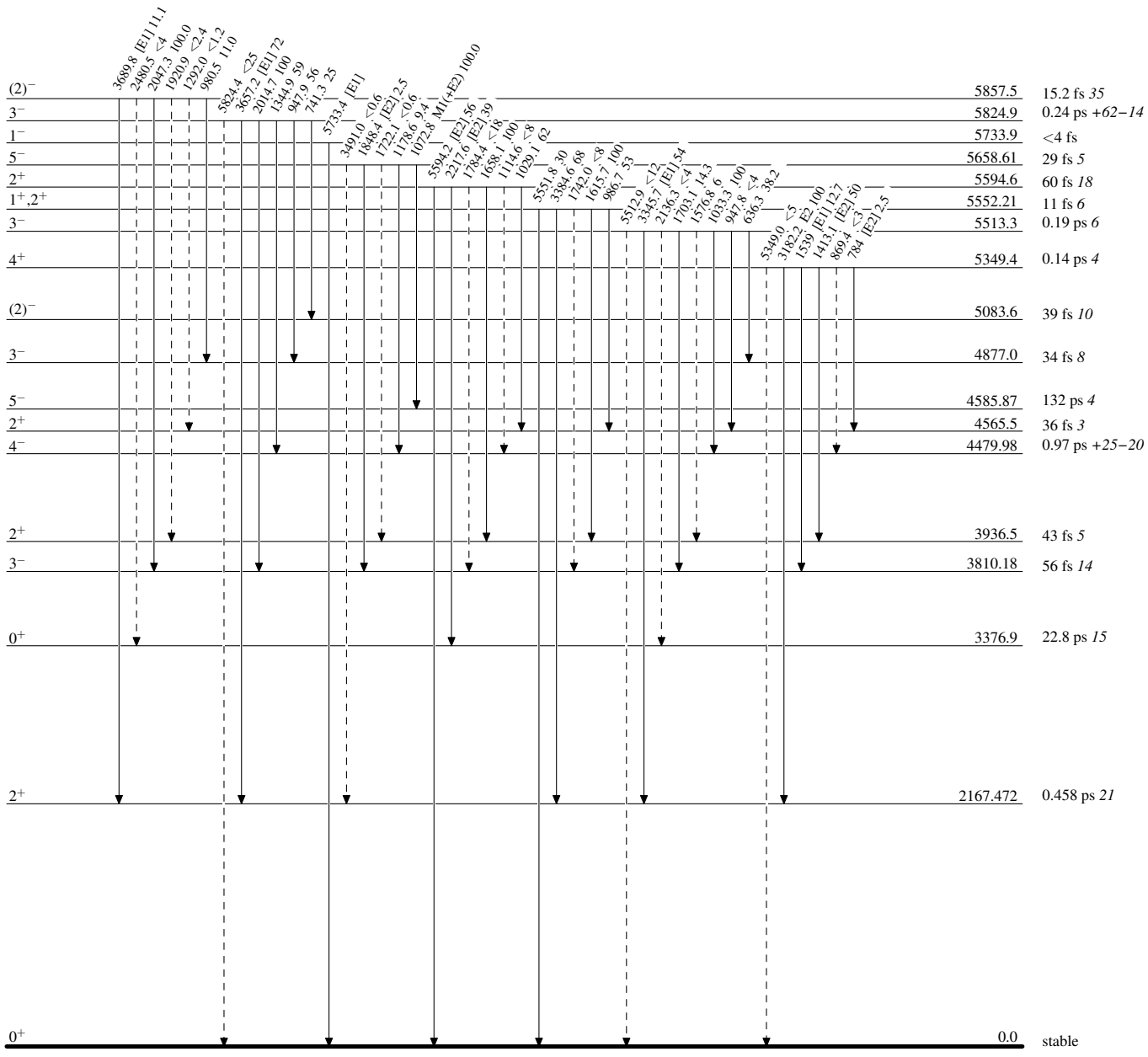
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

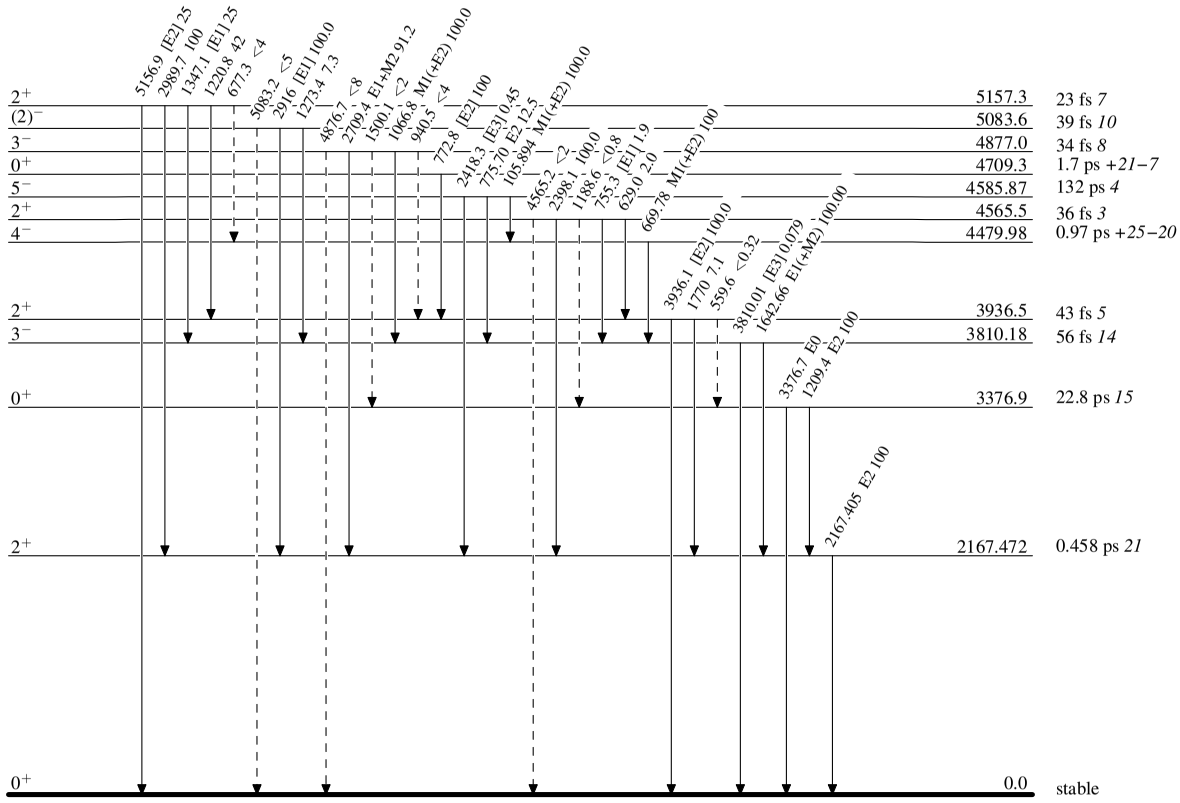
Adopted Levels, Gammas

Legend

Level Scheme (continued)

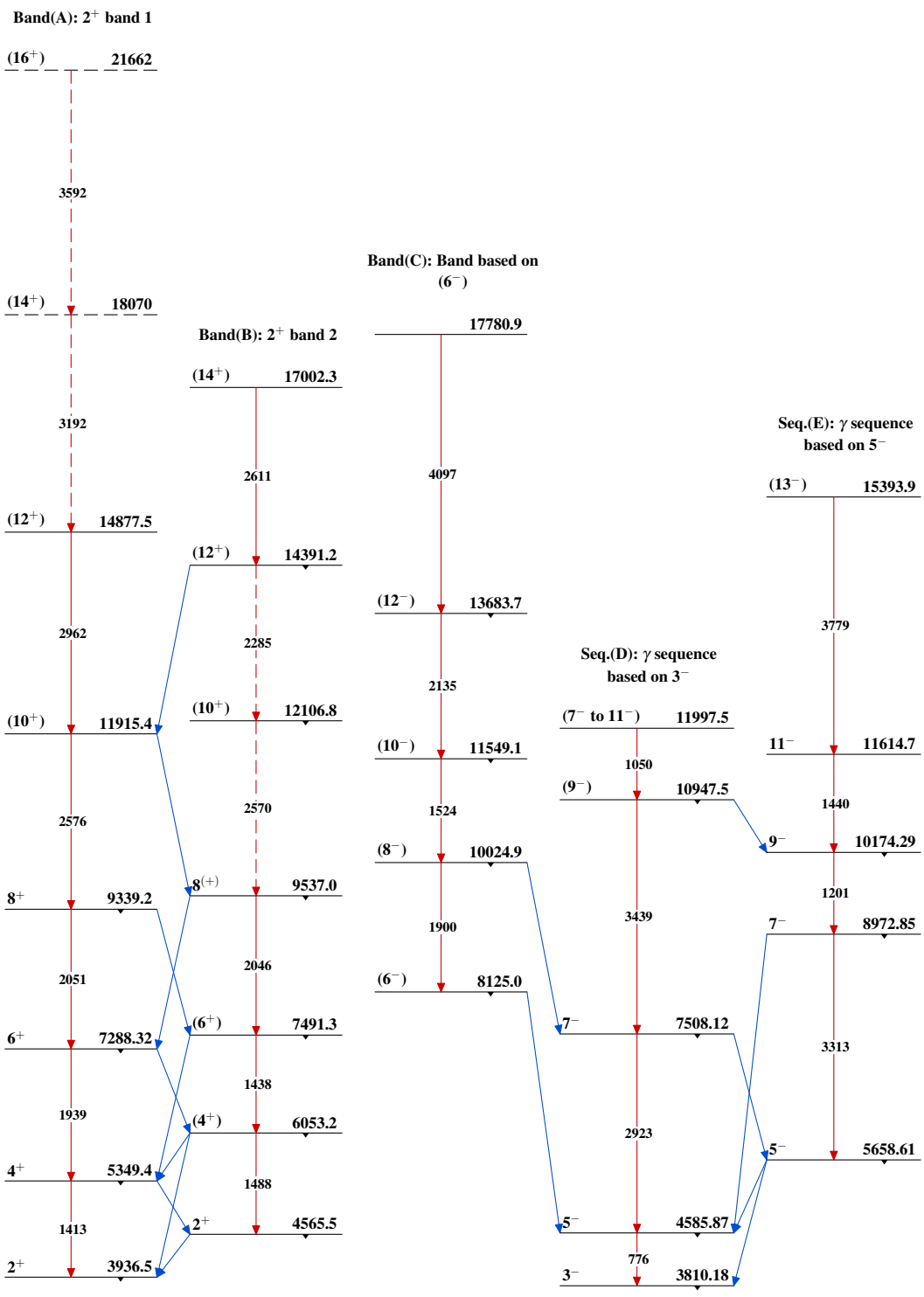
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{38}_{18}Ar_{20}$

Adopted Levels, Gammas



$^{38}_{18}Ar_{20}$