Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

Q(β^-)=−12680.8 *6*; S(n)=15044.32 *23*; S(p)=8863.9638 *14*; Q(α)=−6947.6559 *14* 2021Wa16
S(2n)=28098.92 *21*, S(2p)=16160.517 *22* (2021Wa16).
^{32}S is one of the most extensively studied nuclei in the sd-shell (1998Ka31).
Additional information 1.
Mass measurements: 2009Kw02, 2006Tr03, 2005Sh38, 2005Ra34, 2005Go36, 1968Ma45.
Mass deduced by IMME analysis: 2021Ka45, 2006Tr03.
Structure calculations:
2022Da11,2020As01,2020Fo04,2019Sm04,2018Hu12,2017Bo18,2017Ha07: calculated levels, J, π, B(E2), etc.

^{32}S Levels

Cross Reference (XREF) Flags

A	^{32}P β^- decay (14.266 d)	N	^{28}Si(^{6}Li,pnγ)	Others:	
B	^{32}Cl ε decay (298 ms)	O	^{28}Si(^{7}Li,t)	AA	^{32}S(π^+,$\pi^{+\prime}$),(π^-,$\pi^{-\prime}$)
C	^{33}Ar εp decay (173.0 ms)	P	^{28}Si(^{12}C,^{8}Be)	AB	^{32}S(n,n$'\gamma$),(n,n$'$)
D	^{36}K $\varepsilon\alpha$ decay (341 ms)	Q	^{28}Si(^{16}O,^{12}C)	AC	^{32}S(p,p$'$),(pol p,p$'$)
E	^{2}H(^{31}P,nγ),^{31}P(d,nγ)	R	^{28}Si(^{18}O,^{14}C)	AD	^{32}S(p,p$'\gamma$)
F	^{4}He(^{28}Si,α):resonances	S	^{29}Si(α,nγ)	AE	^{32}S(d,d$'$),(pol d,d$'$)
G	^{12}C(^{20}Ne,X):resonance	T	^{30}Si(^{16}O,^{14}C)	AF	^{32}S(α,α')
H	^{16}O(^{16}O,X):resonance	U	^{31}P(p,γ) E=res	AG	^{32}S(α,$\alpha'\gamma$)
I	^{16}O(^{20}Ne,α)	V	^{31}P(p,α),(p,p):resonances	AH	^{33}S(p,d)
J	^{24}Mg(^{12}C,α)	W	^{31}P(d,n)	AI	^{33}S(^{3}He,α)
K	^{28}Si(α,γ) E=res	X	^{31}P(^{3}He,d)	AJ	^{34}S(p,t)
L	^{28}Si(α,α):resonances	Y	^{32}S(γ,γ'),(pol γ,γ')	AK	Coulomb excitation
M	^{28}Si(^{6}Li,d)	Z	^{32}S(e,e$'$)		

E(level)†	J$^\pi$‡	$T_{1/2}$ or Γ#	XREF		Comments
0.0	0^+	stable	ABCDE	JK MNOPQRSTU WXY	XREF: Others: AB, AC, AD, AE, AF, AG, AI, AJ, AK J$^\pi$: measurements by optical spectroscopy (1936Ol01,1931Na01). The rms charge radius $<r^2>^{1/2}$=3.2611 fm *18* (2013An02 evaluation).
2230.68 *12*	2^+	0.172 ps *11*	BC E	JK MNOPQRSTU WXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG, AI, AJ, AK μ=+0.9 *2* (1979Za01,2006Sp01,2020StZV) Q=−0.16 *2* (1982Ve09,2021StZZ) B(E2)↑=0.0297 *13* J$^\pi$: 2230.47γ E2 to 0^+. $T_{1/2}$: weighted average of 0.205 ps *16* from (α,nγ), 0.142 ps *21* from (p,γ) E=res, 0.163 ps *24* from measured width in (γ,γ'), 0.24 ps *4* from (p,p$'\gamma$), 0.164 ps *11* from (α,$\alpha'\gamma$), and 0.166 ps *19* from Coulomb excitation, all by DSAM except noted. Other: 0.21 ps *6* from (α,γ) E=res; 0.173 ps *8* from adopted B(E2)↑=0.0297 *13*. μ: average of +0.94 *18* measured using IMPAC method (1979Za01) and +0.88 *20* measured using transient-field method (2006Sp01). See also 2020StZV compilation. Q: from reorientation in Coulomb excitation in 1982Ve09. See also 2021StZZ evaluation. Others: −0.18 *4* or −0.15 *4* (1981Da08), −0.12 *5* (1980Ba40), −0.175 *5*

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
				(1971Ha47), −0.20 *6* (1970Na05), in Coulomb excitation. B(E2)↑: from Coulomb excitation. Other: 0.0200 *22* from (e,e′) is discrepant.
3778.52 *24*	0^+	0.82 ps *7*	BC E JK MNO Q S U WX Z	XREF: Others: AB, AC, AD, AE, AF, AG, AI, AJ Jπ: from L(p,t)=0 from 0^+; 1548.8γ(θ) is isotropic in (p,γ) E=res. $T_{1/2}$: weighted average of 0.89 ps *9* from (^{6}Li,pnγ), 0.88 ps *7* from (α,nγ), 0.59 ps *+14−12* from (p,γ) E=res, 0.69 ps *+21−14* from (p,p′γ), and 0.73 ps *21* from (α,α′γ), all by DSAM.
4282.02 *21*	2^+	38 fs *4*	B E JK MN QRS U WXYZ	XREF: Others: AB, AC, AD, AE, AF, AG, AI, AJ XREF: Z(4360) Jπ: 4281.6γ E2 to 0^+. $T_{1/2}$: weighted average of 41 fs *6* from (^{31}P,nγ), 40 fs *5* from (^{6}Li,pnγ), 29.8 fs *35* from (p,γ) E=res, 32 fs *5* from width in (γ,γ′), 28 fs *10* from (n,n′γ), 52 fs *4* from (p,p′γ), and 33 fs *9* from (α,α′γ), all by DSAM except noted. Other: 71 fs *27* from (α,nγ).
4460.2 *12*	4^+	119 fs *20*	K M O QRSTU WX	XREF: Others: AB, AC, AD, AE, AF, AG, AI, AJ μ=+1.6 *6* (1988Si14,2020StZV) XREF: AE(4470) Jπ: spin=4 from γγ(θ) in (p,p′γ); L(p,t)=4 from 0^+. $T_{1/2}$: weighted average of 140 fs *60* from (p,γ) E=res, 88 fs *21* from (n,n′γ), 150 fs *40* from (p,p′γ), and 137 fs *20* from (α,α′γ). μ: measured using transient-field (1988Si14). See also 2020StZV compilation.
4695.65 *25*	1^+	250 fs *32*	B E K Q S U WX	XREF: Others: AB, AC, AD, AF, AI, AJ Jπ: spin=1 from γ(θ) in (p,γ) E=res; L(d,n)=L(^{3}He,d)=2 from $1/2^+$. $T_{1/2}$: unweighted average of 286 fs *74* from (α,nγ), 367 fs *35* (1969Pi10), 119 fs *70* (1969Th03), 277 fs *28* (1998Ka31), 170 fs *35* (1974Ch09), and 159 fs *38* (1972Co13) from (p,γ), 280 fs *70* (1971In02) and 340 fs *60* (1970Ol01) from (p,p′γ).
5006.0 *4*	3^-	0.52 ps *4*	B JK M OPQRSTU WX Z	XREF: Others: AB, AC, AD, AE, AF, AI, AJ, AK B(E3)↑=0.0070 *5* Jπ: from γ(θ,pol) in (p,γ) E=res. $T_{1/2}$: from (p,p′γ) by DSAM. Others: 0.55 ps *14* from (α,nγ), 0.56 ps *14* from (p,γ) E=res, and 0.49 ps *11* from (n,n′γ). B(E3)↑: from Coulomb excitation. Other: 0.0050 *5* from (e,e′).
5412.4 *10*	3^+	132 fs *14*	K MN S U WX	XREF: Others: AC, AD, AF, AI, AJ Additional information 2. Jπ: spin=3 from γ(θ) in (p,γ) E=res; L(d,n)=2 from $1/2^+$. $T_{1/2}$: weighted average of 132 fs *14* from (p,p′γ), 167 fs *24* from (^{6}Li,pnγ), 139 fs *39* from (α,nγ), and 102 fs *23* from (p,γ) E=res.
5548.60 *26*	2^+	52 fs *6*	B E K Q S U WX	XREF: Others: AC, AD, AF, AI, AJ XREF: Q(5500) Jπ: L(p,t)=2 from 0^+. $T_{1/2}$: weighted average of 58 fs *10* from (^{31}P,nγ), 45 fs *6* from (α,nγ), 56 fs *8* from (p,γ) E=res, and 83 fs *21* from (p,p′γ).

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
5797.0 *5*	1^-	5.8 fs *9*	B E K M O QRS U WXYZ	XREF: Others: AB, AC, AD, AF, AI, AJ Jπ: spin=1 from nγ(θ) in (α,nγ); L(d,n)=L(^{3}He,d)=1 from $1/2^+$. $T_{1/2}$: weighted average of 6.5 fs *21* from (^{31}P,nγ), 9.7 fs *49* from (α,nγ), 5.5 fs *35* from (p,γ) E=res, and 5.6 fs *9* from measured width in (γ,γ′), all by DSAM except noted.
6222.7 *8*	2^-	57 fs *7*	E M Q S U WX	XREF: Others: AB, AC, AD, AF, AI, AJ XREF: M(6210)AJ(6230) Additional information 3. E(level): from (p,γ) E=res. Jπ: spin=2 from γ(θ) in (p,γ) E=res; L(d,n)=L(^{3}He,d)=1 from $1/2^+$. $T_{1/2}$: weighted average of 75 fs *9* from (^{31}P,nγ), 69 fs *18* from (α,nγ), 48 fs *6* from (p,γ) E=res, and 55 fs *14* from (p,p′γ).
6411 *2*	4^+	24.3 fs *35*	K N Q S U WX	XREF: Others: AB, AC, AD, AF, AI, AJ XREF: K(6440)AD(6440) Additional information 4. E(level): weighted average of 6412 *2* from (α,nγ) and 6410 *2* from (p,γ) E=res. Other: 6440 *20* in (p,p′γ). Jπ: L(p,t)=4 from 0^+. $T_{1/2}$: from DSAM in (^{6}Li,pnγ). Other: 24 fs *8* from (α,nγ).
6582 *5*	0^+		X z	XREF: Others: AC, AD, AF, AJ XREF: z(6600) Additional information 5. E(level): weighted average of 6580 *5* in (^{3}He,d), 6581 *10* in (α,α′), and 6584 *5* in (p,t). Other: 6580 from (p,p′γ). Jπ: L(α,α′)=0 from 0^+. Other: $(2^+,3^-)$ from (p,p′) is discrepant.
6621.5 *3*	4^-	0.36 ps *6*	S U WX z	XREF: Others: AB, AC, AD, AF, AI XREF: z(6600) Additional information 6. Jπ: from γ(θ,pol) in (p,γ) E=res. $T_{1/2}$: from (p,γ) E=res. Other: 1.05 ps *30* from (α,nγ) is discrepant.
6665.76 *29*	2^+	43 fs *10*	B S U WX	XREF: Others: AC, AD, AF, AI, AJ Jπ: from ^{31}P(p,γ) γθ, ^{34}S(p,t) angular distributions and L=2 in ^{31}P(^{3}He,d). $T_{1/2}$: weighted average of 42 fs *10* from (p,γ) E=res and 49 fs *21* from (p,p′γ).
6761.6 *10*	5^-	260 fs *35*	M O RSTU WX	XREF: Others: AB, AC, AD, AF, AI, AJ Additional information 7. Jπ: spin=5 from nγ(θ) in (α,nγ); π=natural from (α,α′).
6852.4 *15*	4^+	66 fs *17*	M Q S U WX	XREF: Others: AD, AF, AI, AJ Additional information 8. Jπ: spin=4 from γ(θ) in (p,γ) E=res; L(α,α′)=4 from 0^+.
7001.13 *22*	1^+	1.5 fs *5*	B E K Q U WX Z	XREF: Others: AC, AD, AI, AJ XREF: AC(6980) Jπ: spin=1 from γ(θ) in (p,γ) E=res; L(d,n)=L(^{3}He,d)=2 from $1/2^+$. Isobaric analog state of g.s. 1^+ in ^{32}P and ^{32}Cl. $T_{1/2}$: weighted average of 1.8 fs *9* from (^{31}P,nγ) and 1.4 fs *5* from (p,γ) E=res.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	T$_{1/2}$ or Γ#	XREF	Comments
7114.6 *4*	2$^+$	1.68 fs *35*	B E K R U WX	XREF: Others: AD, AF, AI, AJ Jπ: spin=2 from γ(θ) in (p,γ) E=res; L(d,n)=L(^{3}He,d)=2 from 1/2$^+$. T$_{1/2}$: weighted average of 2.9 fs *13* from (^{31}P,nγ) and 1.59 fs *35* from (p,γ) E=res.
7190.7 *5*	1$^+$	6.3 fs *17*	B E U WX Z	XREF: Others: AC, AI Jπ: L(d,n)=L(^{3}He,d)=0 from 1/2$^+$; strong γ to 0$^+$ g.s. T$_{1/2}$: weighted average of 8.3 fs *21* from (^{31}P,nγ) and 4.9 fs *17* from (p,γ) E=res.
7350.0 *6*	3$^{(+)}$		U WX	XREF: Others: AI, AJ XREF: W(7358)X(7348)AI(7335)AJ(7349) Additional information 9. Jπ: spin=3 from γ(θ) in (p,γ) E=res; 2654γ to 1$^+$.
7367			U	Additional information 10. E(level): from (p,γ) E=res.
7434 *3*	1$^-$	7.7 fs *10*	E M O R U WX	XREF: Others: AC, AF, AI, AJ XREF: AI(7416)AJ(7415) Additional information 11. Jπ: L(d,n)=L(^{3}He,d)=1 from 1/2$^+$; M2 for 7433γ to 0$^+$ ruled out by RUL; T$_{1/2}$: from (^{31}P,nγ).
7484.1 *4*	2$^+$	5.9 fs *10*	B E K U WXY	XREF: Others: AF, AI XREF: K(7500) Jπ: spin=2 from γ(θ) in (p,γ) E=res; 7483γ E2 to 0$^+$. T$_{1/2}$: weighted average of 5.0 fs *12* from DSAM in (^{31}P,nγ), 5.5 fs *8* from DSAM in (p,γ) E=res, and 9.4 fs *16* from measured width in (γ,γ′).
7535.5 *6*	0$^+$	3.3 fs *11*	B E K U WX	XREF: Others: AI, AJ XREF: K(7530) Jπ: L(p,t)=0 from 0$^+$. T$_{1/2}$: from DSAM in (^{31}P,nγ).
7568.7 *17*	5$^+$	104 fs *22*	S U	Jπ: spin from nγ(θ) in (α,nγ); 3108.4γ M1+E2 to 4$^+$. T$_{1/2}$: from DSAM in (α,nγ).
7637.0 *10*	0$^+$		B U	XREF: Others: AC, AF, AI, AJ XREF: AC(7630)AF(7650)AI(7648)AJ(7637) Additional information 12. Jπ: L(p,p′)=0 from 0$^+$; L(α,α′)=0 from 0$^+$ for a group at 7650 *50*. 0$^+$ also from shell-model prediction (2012Me03). Other: 1$^+$ proposed by 1989Cr02 in (p,p′) with L(p,p′)=0 and T=1 is considered unrealistic by 1997Br07 based on the facts of no analog state in ^{32}P and no expected γ transition to ground state. Similar for J(7921) level.
7701.6 *4*	3$^-$	67 fs *20*	M R U WX Z	XREF: Others: AC, AJ Additional information 13. Jπ: spin=3 from γ(θ) in (p,γ) E=res; L(^{3}He,d)=3 from 1/2$^+$.
7882.9 *8*	4$^{(+)}$		U	Additional information 14. Jπ: spin=4 from γ(θ) in (p,γ) E=res; 2335γ to 2$^+$.
7885 *4*	0$^-$,1$^-$,2$^-$		WX	E(level): weighted average of 7887 *4* from (d,n) and 7883 *5* from (^{3}He,d). This level is considered different from 7882.9 level in (p,γ) E=res due to different spin assignments. Jπ: L(d,n)=L(^{3}He,d)=1 from 1/2$^+$.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	T$_{1/2}$ or Γ#	XREF	Comments
7923.5 *11*	0$^+$		B U	XREF: Others: AC, AF, AJ XREF: AF(7950)AJ(7914) Jπ: L(p,p′)=0 from 0$^+$; L(α,α')=0 from 0$^+$ for a group at 7950 *50*. Other: 1$^+$ proposed by 1989Cr02 in (p,p′) is discrepant. See comment for J(7637).
7950.1 *4*	4$^-$	97 fs *18*	S U X	Additional information 15. Jπ: spin=4 from $\gamma(\theta)$ in (p,γ) E=res; L(^{3}He,d)=3 from 1/2$^+$. T$_{1/2}$: other: 0.15 ps *+15−10* from (α,nγ).
7966 *5*	4$^+$		q	XREF: Others: AH, AI, AJ XREF: q(8000)ah(7975)AI(7962) E(level): from (p,t). Jπ: L(p,t)=4 from 0$^+$. Note that $\sigma(\theta)$ in (p,t) is fitted well with L=4, which is inconsistent with L(d,n)=3 from 1/2$^+$ for a group at 7962 *2* and L(^{3}He,d)=3 from 1/2$^+$ for a group at 7973 *5*, indicating two different levels with similar energies. Other: L(^{3}He,α)=(2) from 3/2$^+$.
7974.9 *7*	3$^-$		q U WX	XREF: Others: AF, AH XREF: q(8000)W(7962)X(7973)AF(8000)ah(7975) Additional information 16. Jπ: spin=3 from $\gamma(\theta)$ in (p,γ) E=res; L(d,n)=L(^{3}He,d)=3 from 1/2$^+$; L(α,α')=3 from 0$^+$ for a group at 8000 *50*.
8125.29 *17*	1$^+$	0.132 fs *21*	B U WXYZ	XREF: Others: AC, AJ Jπ: L(d,n)=L(^{3}He,d)=0 from 1/2$^+$; 8124γ to 0$^+$. T$_{1/2}$: from measured width in (γ,γ').
8155 *31*	(1,2)		E	E(level): from (d,nγ) only. Jπ: 8150γ to 0$^+$.
8191.1 *6*	4$^{(+)}$		U X	XREF: X(8194) Additional information 17. Jπ: spin from $\gamma(\theta)$ in (p,γ) E=res; 2643γ to 2$^+$.
8270.3 *14*	5$^-$	<42 fs	S U X	XREF: Others: AH, AJ XREF: ah(8281) Additional information 18. E(level),T$_{1/2}$: from (α,nγ). Jπ: spin=3,5 from n$\gamma(\theta)$ in (α,nγ) and π=− from Mult with RUL; M2 for 2304γ from 5$^+$ proton resonance ruled out by RUL.
8296.1 *10*	3$^-$		M U WX Z	XREF: Others: AC, AH XREF: M(8290)Z(8300)AC(8300)ah(8281) Additional information 19. Jπ: spin=3 from (p,γ) E=res; L(d,n)=L(^{3}He,d)=3 from 1/2$^+$.
8336 *8*	2$^+$			XREF: Others: AJ Jπ: L(p,t)=2 from 0$^+$.
8346.5 *19*	4$^+$	<28 fs	S U X	XREF: Others: AH Jπ: 4$^+$,6$^+$ from $\gamma(\theta)$ in (p,γ) E=res and RUL; 1632γ D+Q from J=3. T$_{1/2}$: from DSAM in (α,nγ).
8380 *5*			X	XREF: Others: AH E(level): from (^{3}He,d).
8407.9 *15*	2$^+$		B U X	XREF: Others: AH Jπ: spin=2 from $\gamma(\theta)$ in (p,γ) E=res; allowed ε feeding from 1$^+$ parent, log *ft*=5.6 *1*.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
8499.4 *4*	1^-	1.30 fs *24*	E K m o WXY	XREF: Others: AC, AF, AH XREF: m(8490)o(8490)ac(8500)ah(8489) Jπ: L(d,n)=L(^{3}He,d)=1 from $1/2^+$; L(α,α′)=1 from 0^+. $T_{1/2}$: from measured width in (γ,γ′).
8504 *6*	(0^+)		m o U	XREF: Others: AC, AF, AH, AJ XREF: m(8490)o(8490)ac(8500)AF(8530)ah(8489) Additional information 20. E(level): this level from (p,γ) E=res is considered different from 8499 level because of no observation of a strong g.s. transition from 8504 level, as seen from 8499 level. Jπ: L(p,t)=(0) from 0^+.
8690 *2*	2^+		B K U WX	XREF: Others: AH Additional information 21. E(level): from (α,γ) E=res. Jπ: spin=2 from γ(θ) in (α,γ) E=res, with π=natural for this α resonance.
8729.3 *6*	3^+		U X	XREF: Others: AH, AJ XREF: AJ(8725) Additional information 22. Jπ: spin=3 from γ(θ) in (p,γ) E=res; M2 for 2940γ from the 5^+ proton resonance is ruled out by RUL.
8745.6 *8*	3		U	XREF: Others: AC XREF: AC(8750) Additional information 23. Jπ: spin=3 from γ(θ) in (p,γ) E=res.
8861.1 *16*	2^+		B K U X	XREF: Others: AH, AJ XREF: AJ(8848) Jπ: allowed ε feeding from 1^+ parent, log *ft*=5.1 *1*; π=natural for α resonance in (α,γ) E=res; 8860γ to 0^+.
9023 *2*	3^-		K UVWX	XREF: Others: AF, AJ Additional information 24. E(level): from (α,γ) E=res. Jπ: L(d,n)=L(^{3}He,d)=3 from $1/2^+$; π=natural for α resonance in (α,γ) E=res.
9023.8 *21*	4^-,6^-	184 fs *38*	S	%α=33 *10* Additional information 25. E(level): from (α,nγ). Jπ: spin=4,6 from γ(θ) in (p,γ) E=res: 2262γ M1+E2 to 5^-. $T_{1/2}$: from DSAM in (α,nγ). %α: deduced by the evaluator based on Γ_α/Γ=0.37 *13* and Γ_γ/Γ=0.75 *19* measured by 1995Ro22 in (p,α),(p,p):res. 1995Ro22 don′t explain why the sum of α and γ decay branches is greater 100%.
9058 *2*	$(1,2)^-$		m UVWX	XREF: Others: AC, AF, AH XREF: m(9060)ac(9080)ah(9061) Additional information 26. Jπ: L(d,n)=L(^{3}He,d)=1 from $1/2^+$; 6828γ to 2^+. Other: L(α,α′)=3 from 0^+ for a group at 9060 *50* (2013It04; measured at θ=4.8°) is inconsistent.
9065 *2*	4^+	<14 fs	K m U	XREF: Others: AC, AF, AH XREF: m(9060)ac(9080)ah(9061) Additional information 27.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
				E(level),$T_{1/2}$: from (α,γ) E=res. Jπ: spin=4 from $\gamma(\theta)$ in (α,γ) E=res; π=natural for α resonance in (α,γ) E=res.
9138				XREF: Others: AH
9170 *3*	(3$^+$)		S UV X	XREF: Others: AH Additional information 28. E(level): from (α,nγ). Also from (p,γ) E=res. Jπ: proposes by 1978Ka18 in (^{3}He,d) as analog state of 2178, 3$^+$ level in ^{32}P.
9196 *8*	2$^+$		U	XREF: Others: AJ E(level): from (p,t). Jπ: L(p,t)=2 from 0$^+$.
9207.34 *23*	1$^+$	4.2 fs *14*	B UVWXY	Jπ: spin=1 from $\gamma(\theta)$ in (p,γ) E=res; allowed ε feeding from 1$^+$ parent, log *ft*=4.9 *1*; L(d,n)=0+2 from 1/2$^+$. $T_{1/2}$: from measured width in (γ,γ'). This level is considered to decay mostly by γ emission. From 1995Ro22 in (p,α),(p,p):res, %α<5.
9235.2 *24*	(2$^+$,3,4,5$^+$)	<42 fs	m S	XREF: m(9240) Additional information 29. Jπ: 3822γ to 3$^+$, 4776γ to 4$^+$. $T_{1/2}$: from DSAM in (α,nγ).
9236 *2*	1$^-$		B K m UVWX	XREF: B(9231)m(9240)W(9241) Additional information 30. E(level): from (α,γ) E=res. Jπ: L(^{3}He,d)=1 from 1/2$^+$; π=natural for α resonance in (α,γ) E=res.
9254 *2*	(2)$^+$		UV X	Additional information 31. Jπ: L(^{3}He,d)=2 from 1/2$^+$; proposed by 1997Br07 in (p,γ) E=res as analog state of 2218, 2$^+$ level in ^{32}P.
9289 *1*	1$^+$		M UVWX	XREF: Others: AC XREF: M(9300) Additional information 32. Jπ: spin=1 from $\gamma(\theta)$ in (p,γ) E=res; L(d,n)=0+2 from 1/2$^+$.
9388 *1*	2$^-$	<0.7 fs	UVWX	XREF: X(9395) Additional information 33. Jπ: spin=2 from $\gamma(\theta)$ in (p,γ) E=res; L(d,n)=L(^{3}He,d)=1 from 1/2$^+$. This level decays mostly by proton emission, base on measured $\Gamma_\alpha/\Gamma \leq 0.02$ and $\Gamma_\gamma/\Gamma < 0.05$ by 1995Ro22 in (p,α),(p,p):res.
9463.8 *15*	5$^-$,7$^-$	<49 fs	S	Jπ: spin=5,7 from $\gamma(\theta)$ in (α,nγ); 2702γ to 5$^-$ is M1+E2 or E2. $T_{1/2}$: from (α,nγ).
9466.0 *15*	2$^+$	3.1 eV	B K M UV X	XREF: Others: AF, AJ XREF: AF(9480) Additional information 34. E(level): from (p,γ) E=res. Other: 9466.0 *15* from (α,γ) E=res. Jπ: spin=2 from analysis of $\sigma(\theta)$ in (p,α),(p,p):resonance; π=natural for α resonance

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	T$_{1/2}$ or Γ#	XREF	Comments
				in (α,γ) E=res. This level decays by both α and γ emissions with comparable widths based on Γ=3.1 eV in (α,γ) E=res and (2J+1)Γ$_α$Γ$_γ$/Γ=0.68 eV in (p,α),(p,p′):res, but the branching of each channel cannot be uniquely determined based on available data. The proton emission branching ratio is negligible compared to the other two channels, according to measured S$_{pγ}$=a few eV in (p,γ) E=res.
9485.8 *10*	1⁻	8.2 eV *25*	K M	UVWX %α≈75.5; %p≈19.6 XREF: M(9500)X(9493) Additional information 35. Jπ: spin=1 from γ(θ) in (p,γ) E=res; L(d,n)=L(^{3}He,d)=1 from 1/2$^+$. This level decays by α, p and γ emissions, with %α≈75.5, %p≈19.6, and %γ≈4.9 based on Γ=8.2 eV *25* in (α,γ) E=res, (2J+1)Γ$_α$Γ$_γ$/Γ=0.885 eV *78* in (p,α),(p,p′):res, and (2J+1)Γ$_α$Γ$_γ$/Γ=0.23 eV *2* in (p,γ) E=res, assuming particle decays are dominant.
9562 *10*	0⁻,1⁻,2⁻			X Jπ: L(^{3}He,d)=1 from 1/2$^+$.
9637.0 *15*	6⁻	62 fs *38*		S XREF: Others: AA XREF: AA(9650) Jπ: spin=4,6 from nγ(θ) in (α,nγ); 3015γ M1+E2 or E2 to 4$^-$; 6$^-$ from analysis of σ(θ) in (π$^+$,π$^{+\prime}$) for a group at 9650 *30*. T$_{1/2}$: from DSAM in (α,nγ).
9650.3 *11*	2⁺		B	UVWx XREF: Others: AH, AJ XREF: x(9652)ah(9655) Jπ: L(p,t)=2 from 0$^+$; spin=2 also from γ(θ) in (p,γ) E=res.
9659 *1*	1⁺	8.2 eV *25*		UV xYZ XREF: Others: AC, AH %α=73 *10*; %p=4.0 *14* XREF: x(9652)ah(9655) Additional information 36. Jπ: L(p,p′)=0 from 0$^+$; 9657γ to 0$^+$; 1$^+$ also from γ(θ,pol) in (γ,γ′). This level decays by α, p and γ emissions, with %p=4.0 *14*, %γ=23 *10*, %α=100−%p−%γ=73 *10*, based on (2J+1)Γ$_p$Γ$_γ$/Γ=0.22 eV *4* in (p,γ) E=res, Γ=8.2 eV *25* from (p,α),(p,p):res and Γ$_{γ0}$=1.5 eV *4* from (γ,γ′).
9711.9 *14*	2⁺		B K	U XREF: Others: AJ XREF: AJ(9704) Additional information 37. Jπ: spin=2 from γ(θ) in (α,γ) E=res; π=natural.
9724 *1*	(3⁻,4⁻)			U x XREF: x(9732) Additional information 38. Jπ: spin=2,3,4 from γ(θ) in (p,γ) E=res; 2962γ to 5$^-$, 3501γ to 2$^-$.
9727.9 *5*				U x XREF: x(9732)
9731 *1*	2⁻			U Wx XREF: x(9732) Additional information 39. Jπ: L(d,n)=1 from 1/2$^+$; 9829γ to 0$^+$, 1781γ to 4$^-$.
9783.0 *20*	6⁺	94 fs *+87−73*		S XREF: Others: AH Additional information 40.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
				Jπ: spin=6 from nγ(θ) in (α,nγ); 5324γ E2 to 4+.
				$T_{1/2}$: from DSAM in (α,nγ).
9816.8 *10*	3−		Q U WX	XREF: Others: AA, AF, AJ
				XREF: Q(9800)AA(9810)AF(9860)AJ(9820)
				Additional information 41.
				E(level): from ^{31}P(p,γ).
				Jπ: L(^{3}He,d)=3 from 1/2+; L(α,α′)=3 from 0+ for a group at 9860 *50*; 9815γ to 0+.
9827? *3*			U	
9848 *1*	1−	0.8 keV	K UVWX	XREF: Others: AF
				XREF: K(9854?)af(9880)
				Additional information 42.
				Jπ: spin=1 from analysis of σ(θ) in (p,α),(p,p):resonance; (^{3}He,d)=1 from 1/2+. Other: 9880 *50* from (α,α′)=1 from 0+ is most likely the same level, based in Jπ assignment.
				This level decays mainly by proton emission.
9883.3 *5*			U w	XREF: Others: AF
				XREF: w(9884)af(9880)
9887.3 *6*	(2)+		B U wX	XREF: Others: AH
				XREF: w(9884)X(9893)AH(9886)
				Additional information 43.
				Jπ: L(^{3}He,d)=2 from 1/2+; allowed ε feeding from 1+ parent, log *ft*=4.9 *1*; 5427γ to 4+.
9918.1 *7*	2+		U	XREF: Others: AJ
				Additional information 44.
				Jπ: L(p,t)=2 from 0+; 2382γ to 0+. Other: 3+ proposed in 1997Br07 in (p,γ) E=res is inconsistent.
9930	1+			XREF: Others: AC
				E(level): (p,p′).
				Jπ: from analysis of σ(θ) in (p,p′) with L(p,p′)=0 from 0+.
9946.6 *5*	1−		K U WX	XREF: Others: AH
				XREF: K(9935)X(9955)
				Additional information 45.
				E(level): from ^{31}P(p,γ).
				Jπ: spin=1 from γ(θ) in (p,γ) E=res; L(^{3}He,d)=1 from 1/2+.
9949 *5*	0+,1+,2+		B	Jπ: allowed ε feeding from 1+ parent, log *ft*=5.6 *1*.
9977.9 *5*	4(−)		U Wx	XREF: Others: AH
				XREF: x(9985)ah(9976)
				Additional information 46.
				Jπ: spin=4 from γ(θ) in (p,γ) E=res; L(^{3}He,d)=3 from 1/2+ for a group at 9985 *10*, which could be an unresolved doublet.
9978.3 *1*	3(+)		U x	XREF: Others: AH
				XREF: x(9985)ah(9976)
				Additional information 47.
				Jπ: spin=3 from γ(θ) in (p,γ) E=res; 2977γ Q(+O) to 1+.
9980 *10*	1+		Z	Jπ: from analysis of σ(θ) in (e,e′).
9982.7 *6*	2		B k U x	XREF: k(9986)x(9985)
				Additional information 48.
				Jπ: spin=2 from γ(θ) in (p,γ) E=res. 2− proposed by 1997Br07 but 2+ cannot be ruled out.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
9988 *10*	0^+	≈4 keV	k V	XREF: k(9986) Additional information 49. E(level),Jπ: from (p,α),(p,p):resonance. Other: 9986 in (α,γ):resonances.
9997 *6*			K	E(level): from (α,γ) E=res.
10021 *10*	$2^-,3^-,4^-$		X	Jπ: L(^{3}He,d)=3 from $1/2^+$.
10072.9 *11*	2^-	1.60 keV *24*	UVWX Z	XREF: Others: AC XREF: Z(10090)AC(10080) Additional information 50. Jπ: spin=2 from σ(θ) in (p,γ) E=res; L(d,n)=L(^{3}He,d)=1 from $1/2^+$. γ-emission branching ratio is %γ=0.054 *11*, deduced from Γ=1.60 keV *24* from (p,α),(p,p):res and Γ_γ=0.86 eV *11* from (p,γ) E=res.
10102.3 *10*	4^+		K U X	XREF: K(10113)X(10098) Additional information 51. Jπ: spin=4 from γ(θ) in (p,γ) E=res; π=natural for α resonance in (α,γ) E=res.
10218.8 *6*	3^+	≤10 eV	UVw	XREF: w(10220) Additional information 52. Jπ: spin=3 from γ(θ) in (p,γ) E=res; L(p,p)=2 from $1/2^+$ g.s. of ^{31}P.
10221.2 *6*	3^-	65 eV *25*	K UVwX	XREF: w(10220) Additional information 53. Jπ: spin=3 from γ(θ) in (p,γ) E=res; L(p,p)=3 from $1/2^+$ g.s. of ^{31}P. Γ_p=16 eV *2* and Γ_α=49 eV *17* from (p,α),(p,p):res.
10224.8 *15*			U	
10224.8 *15*	1^-	0.165 keV *25*	UV	E(level): weighted average of 10224.8 *15* from (p,γ) E=res and 10225.0 *16* from (p,α),(p,p):resonance. Jπ: from analysis of σ(θ) in (p,p):resonance, with L(p,p)=1 from $1/2^+$ of ^{31}P g.s.
10230.1 *6*	1^+	25 eV *10*	B UV	Additional information 54. Jπ: from γ(θ) and γ(θ,pol) in (p,γ) E=res.
10250	0^+		F	Jπ: L=0 from ^{4}He(^{28}Si,α):resonances.
10256.0 *7*	4^-	45 eV *20*	UVWX	Additional information 55. E(level): other: 10256.0 *15* from (p,p):resonances. Jπ: spin=4 from γ(θ) in (p,γ) E=res; L(^{3}He,d)=3 from $1/2^+$.
10276 *8*	4^+			XREF: Others: AF, AJ XREF: AF(10300) Jπ: L(p,t)=4 from 0^+; L(α,α′)=0 from 0^+ for a group at 10300 *50*.
10286.2 *7*	3^-	0.18 keV *6*	K UVWx	XREF: K(10285)W(10270)x(10287) Additional information 56. E(level): other: 10286.7 *15* from (p,α),(p,p):resonances. Jπ: spin=3 from γγ(θ) in (p,γ) E=res; L(p,p)=1+3 from $1/2^+$ of ^{31}P g.s.; π=natural for α resonance in (α,γ) E=res.
10290.2 *6*	2^-	0.125 keV *20*	UVWx	XREF: W(10286)x(10287)

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	T1/2 or Γ#	XREF	Comments
				Additional information 57.
				E(level): also from (p,α),(p,p):resonances.
				Jπ: spin=2 from γ(θ) in (π,γ):E=res; L(p,p)=1 from 1/2+ of ^{31}P g.s.
10291.8 *15*	2+	1.3 keV	B K UV	XREF: Others: AA
				XREF: aa(10310)
				E(level): other: 10292.0 *15* from (p,α),(p,p):resonances, 10291 *5* from ^{32}Cl ε decay.
				Jπ: from σ(θ) in (p,p):resonances, with L(p,p)=2 from 1/2+; π=natural for α resonance in (α,γ):resonances; allowed ε feeding from 1+ parent, log *ft*=5.11 *5*.
10331.0 *6*	1−	7.6 eV *8*	K UVWX	XREF: Others: AA
				XREF: K(10340)W(10327)X(10330)aa(10310)
				Additional information 58.
				E(level): from (p,α),(p,p):resonances. Other: 10330.9 *15* from (p,γ) E=res.
				Jπ: spin=1 from σ(θ) in (p,p):resonances, with L(p,p)=1 from 1/2+; also L(d,n)=L(^{3}He,d)=1 from 1/2+; π=natural from (α,γ) E=res.
10369	0+	5.8 keV	F Lm o	XREF: F(10380)m(10400)o(10400)
				Jπ,Γ: from R-matrix analysis of σ(θ) in (α,α):resonances. Other: $J^{\pi}=0^{+}$ and Γ=40 keV from R-matrix analysis for a group at 10380 in ^{4}He(^{28}Si,α):resonances.
10370.6 *6*	2+	30 eV *10*	m o UV X	XREF: Others: AJ
				XREF: m(10400)o(10400)X(10368)AJ(10370)
				Additional information 59.
				E(level): from (p,α),(p,p):resonances. Other: 10370.3 *4* from (p,γ) E=res.
				Jπ: spin=2 from γ(θ) in (p,γ) E=res and also from σ(θ) in (p,p):resonances; L(p,t)=2 from 0+.
10396.5 *6*	4−	25 eV *+20−10*	m o UVWX	XREF: m(10400)o(10400)W(10394)X(10395)
				Additional information 60.
				E(level): other: 10396.7 *6* from (p,α),(p,p):resonances.
				Jπ: spin=4 from γ(θ) in (p,γ) E=res; L(p,p)=3 from 1/2+ of ^{31}P g.s.
10399.2 *6*	0−	8.3 keV *13*	UV	Additional information 61.
				E(level),Jπ: from (p,p′):resonances, L(p,p)=1 from 1/2+ of ^{31}P. Other: 10399.2 *15* from (p,γ) E=res.
10434.3 *10*	(2+,3−)		K X	XREF: Others: AC
				XREF: AC(10430)
				Additional information 62.
				Jπ: L(^{3}He,d)=2,3 from 1/2+; π=natural for α resonance in (α,γ) E=res. 3− proposed by 1997Br07 based on γ-decay modes in (α,γ) E=res, but 2+ cannot be ruled out.
10450 *10*	1+		Z	Jπ: from analysis of σ(θ) in (e,e′).
10458 *5*	0+	2.9 keV	B F KL V	XREF: Others: AF
				XREF: F(10460)L(10500)AF(10490)
				Additional information 63.
				E(level): weighted average of 10459 *5* in ^{32}Cl ε

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
				decay and 10456 *6* from (p,α),(p,p):resonances. Jπ: spin=0,1 from σ(θ) in (p,α),(p,p):resonances; π=natural for α resonance; L=0 for resonance in ^{4}He(^{28}Si,α):resonances; L(α,α′)=0 from 0^{+} for a group at 10490 *50*. Γ: other: 1.7 keV from (α,α):resonances, 30 keV from ^{4}He(^{28}Si,α):resonances.
10508.4 *10*	(1,2)		U	Additional information 64. Jπ: 10507γ to 0^{+}. Other: 2^{+} proposed in 1997Br07, but 1 and 2^{-} cannot be ruled out.
10529 *5*	2^{+}	1.8 keV	B k V	XREF: Others: AJ XREF: k(10532)aj(10530) E(level): weighted average of 10531 *5* from ^{32}Cl ε decay and 10525 *6* from (p,α). Jπ: spin=2 from σ(θ) in (p,α),(p,p):resonances; allowed ε feeding from 1^{+} parent;
10533 *10*	2^{-},3^{-},4^{-}	8 keV	F k V X	XREF: Others: AJ XREF: F(10530)k(10532)aj(10530) E(level): from (^{3}He,d). Other: 10539 from (p,p′):resonances. Jπ: L(^{3}He,d)=3 from 1/2^{+}. Other: L(α)=1 in ^{4}He(^{28}Si,α) suggests 1^{-}. Γ: other: 20 keV ^{4}He(^{28}Si,α).
10555.8? *10*			U	Additional information 65.
10570	0^{+}	1.2 keV	L	E(level),Jπ,Γ: from (α,α):resonances, with J^{π} and Γ from analysis of σ(θ).
10573.2 *10*	5^{+}		U	Additional information 66. Jπ: spin=5 from γ(θ) in (p,γ) E=res; parity from rejecting L=5 as a result of strong centrifugal barrier (1997Br07).
10603.5 *10*	(2^{+})	3 keV	U V	Additional information 67. Jπ: 2^{+},3^{-} from σ(θ) in (p,α),(p,p):resonances; 10602γ to 0^{+}. Other: 1^{-} in 1997Br07.
10624 *6*	3^{-}	3.1 keV	V X	E(level): from (p,α),(p,p):resonances. Other: 10624 *10* from (^{3}He,d). Jπ: spin=3 from σ(θ) in (p,α),(p,p):resonances; L(^{3}He,d)=3 from 1/2^{+}.
10635.8 *10*	(3^{-},4^{+},5^{-})		K U	XREF: K(10632) Additional information 68. $T_{1/2}$ or Γ: 3874γ to 5^{-}, 2935γ to 3^{-}; π=natural for α resonance in (α,γ) E=res.
10650	0^{+}	20 keV	F	E(level),Jπ,Γ: from ^{4}He(^{28}Si,α):resonances, with J^{π} and Γ from R-matrix analysis of σ(θ).
10658	1^{-}	2.3 keV	L	E(level),Jπ,Γ: from (α,α):resonances, with J^{π} and Γ from analysis of σ(θ).
10695.9 *10*	(2^{+})		U	Additional information 69. Jπ: 3169γ to 0^{+}, 6236γ to 4^{+}.
10700.2 *10*	1^{-}	26 keV *2*	k U V W X	XREF: k(10709)W(10720)X(10698) Additional information 70. E(level),Γ: from ^{31}P(p,γ). Jπ: from σ(θ) of (p,α):resonances; L(d,n)=L(^{3}He,d)=1 from 1/2^{+}.
10704.8 *10*	(5^{-})	20 keV	F k U	XREF: F(10700)k(10709) Additional information 71.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
				Jπ: L=5 from 0^+ in ^{4}He(^{28}Si,α):resonances; also 3943γ to 5^-, 3004γ to 3^- in (p,γ) E=res. Γ: from ^{4}He(^{28}Si,α):resonances.
10745	0^+	8.9 keV	L	XREF: Others: AA XREF: AA(10740) E(level),Jπ,Γ: from (α,α):resonances, with J^π and Γ from analysis of σ(θ).
10756.3 *10*	3		U	Additional information 72. Jπ: spin=3 from γ(θ) in (p,γ) E=res.
10763 *4*	(1^-)	2.5 keV	VWx	XREF: Others: AC XREF: x(10777)ac(10780) E(level): from (d,n). Other: 10771 from (p,α),(p,p):resonances. Jπ: 1^-,2^+ from σ(θ) of (p,α):resonances; L(^{3}He,d)=1 from $1/2^+$ for group at 10777 *10*, which could be a doublet or triplet.
10778.3 *10*	(2^+)		m o Uv x	XREF: Others: AC XREF: m(10800)o(10800)v(10778)x(10777)ac(10780) Additional information 73. E(level),$T_{1/2}$ or Γ: the 10778 *10* resonance from (p,α),(p,p):resonances is likely an unresolved triplet of 10778+10783+10784 that are divided in (p,γ) E=res. Γ=4.4 keV for the 10788 *10* resonance. Jπ: 10776γ to 0^+, 3428γ to $3^{(+)}$, 1755γ to 3^-.
10783.2 *10*	2^+		B F m o Uv x	XREF: Others: AC, AJ XREF: B(10780)F(10780)m(10800)o(10800)v(10778)x(10777)ac(10780) Additional information 74. E(level),$T_{1/2}$ or Γ: see comment for 10788 level. Jπ: allowed ε feeding from 1^+ parent, log *ft*=4.5 *1*; L(p,t)=2 from 0^+.
10784.0 *10*	$(0,1,2,3^+)$		m o Uv x	XREF: Others: AC XREF: m(10800)o(10800)v(10778)x(10777)ac(10780) Additional information 75. E(level),$T_{1/2}$ or Γ: see comment for 10788 level. Jπ: 3782γ to 1^+.
10791.4 *10*	1^-	≤3 keV	K m o UV	XREF: m(10800)o(10800) Additional information 76. Jπ: from σ(θ) of (p,α):resonances and σ(θ) of (α,γ):resonance. Other: 2^+ proposed in 1988Fa01 in (p,α),(p,p):resonance is in disagreement, which might indicate a different level with similar energy.
10792 *5*	$(2)^+$		B V	XREF: V(?) E(level): from ^{32}Cl ε decay. Jπ: allowed ε feeding from 1^+ parent, log *ft*=5.0 *1*; π=natural based on observed subsequent α decay of this level. 1988Fa01 in (p,α),(p,p):resonance propose 2^+ for a resonance at similar energy, might be the same level as this one.
10806	2^+		K m o z	XREF: Others: AC, AJ XREF: m(10800)o(10800)z(10810)ac(10780)aj(10823) Additional information 77. E(level),Jπ: from (α,γ):resonance, with spin from γ(θ) and π=natural.
10810 *10*	2^-		Z	E(level),Jπ: from (e,e′).

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
10816	3⁻	4.7 keV	L	E(level),Jπ,Γ: from (α,α):resonances, with J^π and Γ from σ(θ).
10822 *3*	1⁻	≈6 keV	Vwx	XREF: w(10819)x(10826) E(level),Jπ: from (p,α),(p,p):resonance, with J^π from σ(θ) of (p,α); L=1 from 1/2⁺ for a group at 10819 *6* in (d,n) and at 10826 *10* in (^{3}He,d).
10823 *8*	2⁺			XREF: Others: AJ E(level),Jπ: from (p,t), with J^π from L(p,t)=2 from 0⁺.
10824.9 *10*	1⁻	15 keV	UVwx	XREF: w(10819)x(10826) Additional information 78. E(level),Jπ: from (p,α),(p,p):resonance, with J^π from σ(θ) of (p,α). Also see comment for 10822 level.
10827.0 *10*	1⁻	18 keV *2*	K UV x	XREF: K(10832)x(10826) Additional information 79. Jπ: spin=1 from γ(θ) in (α,γ):resonance, with π=natural.
10831 *10*	2⁺,(3⁻)	≈2.5 keV	V	Jπ: from σ(θ) of (p,γ):resonances.
10841 *10*	2⁺	≈0.4 keV	K V	Additional information 80. E(level): from (p,α),(p,p):resonances. Jπ: spin=2 from γ(θ) in (α,γ) E=res; π=natural.
10851	1⁻		K	Additional information 81. E(level): from (α,γ) E=res. Jπ: spin=1 from γ(θ) in (α,γ) E=res; π=natural.
10868	2⁺	7.7 keV	L	XREF: Others: AF XREF: AF(10880) E(level),Jπ,Γ: from (α,α):resonances.
10880 *40*	6⁻			XREF: Others: AA E(level),Jπ: from (π⁺,π⁺′).
10900 *10*	1⁺,(2⁻)		F Z	XREF: Others: AF XREF: F(10880)AF(10890) E(level),Jπ: from (e,e′), with J^π from (e,e′) strength. Others: L=0 for a ^{4}He(^{28}Si,α) suggests 0⁺ for a group at 10880; 3⁻ from (α,α′) for a group at 10890.
10915 *2*	1⁻		UV	XREF: Others: AF Additional information 82. E(level): others: 10907 *10* from (p,α):resonances, 10920 *50* from (α,α′). Jπ: from σ(θ) of (p,α):resonances; L(α,α′)=1 from 0⁺.
10933.1 *10*	3		U	Additional information 83. Jπ: spin=3 from γ(θ) in (p,γ) E=res.
10941	1⁻		K	Additional information 84. E(level),Jπ: from (α,γ) E=res, with J^π from γ(θ) and π=natural.
10956	0⁺	2.9 keV	F L	XREF: F(10950) E(level),Jπ,Γ: from (α,α):resonances. Other: 2⁺ for a resonance at 10950 in ^{4}He(^{28}Si,α):resonances is inconsistent.
10976 *3*	2⁻		V X	XREF: X(10977) E(level),Jπ: from (p,α):resonances, with J^π from σ(θ); L(^{3}He,d)=(1) from 1/2⁺.
10980 *40*	6⁻		Z	XREF: Others: AA E(level),Jπ: from (e,e′).
11009.4 *10*	4⁺		K U X	Additional information 85. Jπ: spin from γ(θ) in (p,γ) E=res; π=natural from

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	T$_{1/2}$ or Γ[#]	XREF	Comments
				(α,γ) E=res.
11020	0⁻,1⁻,2⁻		W	Jπ: L(d,n)=1 from 1/2⁺.
11052	(3⁻,4⁺,5⁻)		F K	XREF: F(11050) Additional information 86. E(level),Jπ: from (α,γ) E=res, with J^π from γ(θ) and π=natural. Other: 0⁺ from L=0 for a 11050 resonance in ^{4}He(^{28}Si,α) is inconsistent, but it is more likely the same level as 11052 in (α,γ) E=res because of the same reaction mechanissm, other than as 11063 level in ^{32}Cl ε decay.
11063 *5*	0⁺,2⁺		B	E(level): from ^{32}Cl ε decay. Jπ: allowed ε feeding from 1⁺ parent, log *ft*=5.4; π=natural from observed α decay.
11078	2⁺		K	Additional information 87. E(level),Jπ: from (α,γ) E=res, with J^π from γ(θ) and π=natural.
11091.7 *10*	3⁻		UV X	Additional information 88. Jπ: spin=3 from γ(θ) in (p,γ) E=res; L(^{3}He,d)=3 from 1/2⁺.
11104	2⁺	67.4 keV	L	E(level),Jπ,Γ: from (α,α):resonances, with J^π and Γ from σ(θ).
11114 *2*	(2⁺,3⁻)		K U	XREF: K(11110) Additional information 89. Jπ: 11113γ to 0⁺, 4490γ to 4⁻; π=natural from (α,γ) E=res.
11122 *1*	(1,2⁺)		U	Additional information 90. Jπ: primary 11120γ to 0⁺. Other: 1⁺ proposed in 1997Br07.
11130	0⁺	1.8 keV		XREF: Others: AC E(level),Jπ,Γ: from (α,α):resonances.
11131 *2*	1⁺		L U	Additional information 91. Jπ: from σ(θ) of (p,p′):resonances, with L(p,p′)=0; 11129γ to 0⁺.
11139.2 *10*	(1,2⁺)		U	Additional information 92. Jπ: primary 11137γ to 0⁺. Other: 1⁺ proposed in 1997Br07.
11160 *10*	1⁺		Z	E(level),Jπ: from (e,e′), with J^π from analysis of σ(θ).
11170 *50*	6⁻		Z	E(level),Jπ: from (e,e′), with J^π from analysis of σ(θ).
11198 *10*	2⁻,3⁻,4⁻		WX	XREF: W(11210) Jπ: L(^{3}He,d)=L(d,n)=3 from 1/2⁺.
11221 *10*	1⁻	17 keV *2*	V	E(level),Jπ,Γ: from (p,α),(p,p):resonances.
11234.9 *10*	3		U X	Additional information 93. Jπ: spin=3 from γ(θ) in (p,γ) E=res. Other: 3⁺ proposed in 1997Br07, but 3⁻ cannot be ruled out.
11253.3 *10*	3⁻	1.1 keV	F L U X	Additional information 94. Jπ: spin=3 from γ(θ) in (p,γ) E=res; π=natural in (α,α):resonances. Γ: from (α,α):resonances. Other: 20 keV from ^{4}He(^{28}Si,α):resonances.
11332.2 *10*	(2⁺)		U	Additional information 95. Jπ: 11330γ to 0⁺, 4922γ to 4⁺.
11366 *10*	3⁻	20 keV	F X	XREF: F(11380)

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
				Jπ,Γ: from R-matrix analysis of σ(θ) in ^{4}He(^{28}Si,α).
11410	3⁻	1.9 keV	F L	E(level),Jπ,Γ: from (α,α):resonances. Other: 2⁺ for a 11410 resonance in ^{4}He(^{28}Si,α) is inconsistent.
11425 *10*	1⁻	≈4 keV	V X	XREF: X(11438) E(level),Jπ,Γ: from (p,α),(p,p):resonances.
11463 *2*	(2,3,4)		U	Additional information 96. Jπ: 7181γ to 2⁺, 7004γ to 4⁺.
11474.0 *10*	3(+)		U X	Additional information 97. Jπ: spin=3 from γ(θ) in (p,γ) E=res; 2745γ (M1+E2) to 3⁺.
11485.2 *10*	(1,2)		U	Additional information 98. Jπ: 7707γ to 0⁺. Other: 2⁺ proposed in 1997Br07.
11500 *10*	1⁺		X Z	XREF: X(11504) E(level),Jπ: from (e,e′).
11554 *10*	(0⁺,1⁻)	8 keV *2*	VwX	XREF: Others: AC XREF: w(11580)ac(11550) E(level): weighted average of 11556 *10* from (p,α) and 11551 *10* from (^{3}He,d). Jπ: from σ(θ) of (p,α):resonances.
11570	3⁻	30 keV	F	E(level),Jπ,Γ: from R-matrix analysis of σ(θ) in ^{4}He(^{28}Si,α).
11589.1 *10*	1⁻	17 keV *2*	UVWX	XREF: V(11581)W(11580) Additional information 99. Jπ: from σ(θ) of (p,γ):resonances; L(d,n)=1 from 1/2⁺.
11602.4 *10*	(1,2)		U X	Additional information 100. Jπ: 4066γ to 0⁺, 6595γ to 3⁻. Other: 2⁺ proposed in 1997Br07.
11623 *10*	1⁺		X	XREF: Others: AC, AF XREF: AC(11630)AF(11620) E(level): from (^{3}He,d). Jπ: from σ(θ) of (p,p′), with L(p,p′)=0. Other: 0⁺ for a 11620 level in (α,α′) is inconsistent.
11629	3⁻	5.7 keV	F L	XREF: F(11650) E(level),Jπ,Γ: from (α,α):resonances; J^{π}=3⁻ also from R-matrix analysis of σ(θ) in ^{4}He(^{28}Si,α):resonances. Γ: other: 10 keV from ^{4}He(^{28}Si,α).
11636.5 *10*	(2⁺)		U	Additional information 101. Jπ: 11634γ to 0⁺,3290γ to 4⁺.
11648 *10*	1⁻	6.6 keV	V	E(level),Jπ,Γ: from (p,α),(p,p):resonances.
11650 *10*	1⁺		x Z	XREF: x(11660) E(level),Jπ: from (e,e′).
11669.0 *10*	5⁺		U x	XREF: x(11660) Additional information 102. Jπ: spin=5 from γ(θ) in (p,γ) E=res; π=− is ruled out since it would require L=5 capture which is effectively suppressed by the centrifugal barrier (1997Br07).
11690	3⁻	1.2 keV	L x	XREF: x(11690) E(level),Jπ,Γ: from (α,α′):resonances with R-matrix analysis.
11696.1 *10*	5⁺	10 keV *2*	i UV x	XREF: Others: AF XREF: i(11700)x(11690)af(11710) Additional information 103. Jπ: spin=5 from γ(θ) in (p,γ) E=res; π=− is ruled out

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
				since it would require L=5 capture which is effectively suppressed by the centrifugal barrier (1997Br07). Other: (4+) from (^{20}Ne,α) for a 11700 level, (2+) from (p,α):resonances for a 11695 resonance, and 1− from (α,α′) for a 11710 resonance are inconsistent. Γ: other: 55 keV *24* from ^{16}O(^{20}Ne,α) may belong to this level but many levels overlap within uncertainties.
11720 *10*			i X	XREF: Others: AF XREF: i(11700)af(11710)
11750 *10*	(1−)		K X	XREF: Others: AF XREF: K(11746)af(11730) Additional information 104. Jπ: from γ(θ) in (α,γ) E=res and π=natural. Other: 2+ for a 11730 *50* resonance from (α,α′) is inconsistent.
11758.2 *10*	(3−,4,5−)		U	XREF: Others: AF XREF: af(11730) Additional information 105. Jπ: 3462γ to 3−, 4996γ to 5−. Other: 2+ for a 11730 *5* resonance from (α,α′) is inconsistent.
11785	1−	75 keV *2*	K V X	XREF: V(11778)X(11783) Additional information 106. E(level),Jπ: from (α,γ) E=res, with Jπ from γ(θ) and π=natural.
11803	1−,2+		F K M O X	Additional information 107. E(level),Jπ: from (α,γ) E=res, with Jπ from γ(θ) and π=natural. Other: (3−) for a 11800 resonance in ^{4}He(^{28}Si,α) is inconsistent.
11823 *10*	0−,1−,2−		WX	XREF: W(11820) Jπ: L(d,n)=1 from 1/2+.
11848	3−	10.4 keV	L	E(level),Jπ,Γ: from (α,α):resonance with R-matrix analysis.
11861 *10*			X	
11878 *10*	2−		X Z	E(level): weighted average of 11876 *10* from (^{3}He,d) and 11880 *10* from (e,e′). Jπ: from σ(θ) in (e,e′).
11880	1+			XREF: Others: AC Jπ: from σ(θ) in (p,p′) with L(p,p′)=0 from 0+.
11886 *10*	1−	20 keV *2*	V	E(level),Jπ,Γ: from (p,α),(p,p):resonances.
11900 *10*	0+		X	XREF: Others: AF XREF: AF(11900) E(level): from (^{3}He,d). Jπ: from (α,α′) for a group at 11900 *50*.
11939.5 *10*	3−	7.3 keV	F UV X	XREF: F(11940)V(11937)X(11936) Additional information 108. Jπ: spin=3 from γ(θ) in (p,γ) E=res; L(^{3}He,d)=3 from 1/2+. Other: 3−,2+ from (p,α):resonances; (2+) for 11940 resonance in ^{4}He(^{28}Ca,γ) is inconsistent.
11940 *20*	6−	86 keV *24*	I Z	XREF: Others: AA E(level),Γ: from (^{20}Ne,α). Jπ: from (e,e′) and (π+,π+). Other: 5− from (^{20}Ne,α) is inconsistent.
11955 *10*	2+	3.2 keV	L X	XREF: L(11953)

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
				E(level): from (^{3}He,d). Jπ,Γ: from R-matrix analysis in (α,α):resonances.
12002 *10*	3^-	20 keV	F X	XREF: F(12000) E(level): from (^{3}He,d). Jπ,Γ: from R-matrix analysis in ^{4}He(^{28}Si,α):resonances.
12015 *10*	(2^+)	11.8 keV	V	E(level),Jπ,Γ: from (p,α),(p,p):resonances.
12021	1^-		K	Additional information 109. Jπ: from $\gamma(\theta)$ in (α,γ) E=res and π=natural.
12030 *10*	2^-,(1^+)		Z	E(level),Jπ: from (e,e′).
12043.3 *10*	4^-	0.47 keV *5*	UVWX	XREF: W(12040)X(12044) Additional information 110. Jπ: spin=2,3,4 from $\gamma(\theta)$ in (p,γ) E=res; 4^- from analysis of $\sigma(\theta)$ in (p,p):resonances with L(p,p)=3; L(d,n)=L(^{3}He,d)=3 from $1/2^+$.
12047.84 *20*	0^+	<0.17 keV	UV	XREF: Others: AJ XREF: AJ(12034) Jπ: spin=0 from $\gamma(\theta)$ in (p,γ) E=res; also L(p,t)=0 from 0^+.
12048	3^-	7.0 keV	KL	XREF: L(12049) Additional information 111. E(level): from (α,γ) E=res. Jπ: from $\gamma(\theta)$ in (α,γ) E=res and π=natural; 3^- also from $\sigma(\theta)$ in (α,α):resonances. Γ: from (α,α):resonances.
12060 *50*	2^+			XREF: Others: AF E(level),Jπ: from (α,α').
12156 *10*	(2^+)	6.9 keV	F V X	XREF: F(12170) E(level): weighted average of 12151 *10* from (p,α):resonances and 12160 *10* from (^{3}He,d). Jπ: $(3^-,2^+)$ from $\sigma(\theta)$ in (p,α),(p,p):resonances; L(^{3}He,d)=(2) from $1/2^+$. Γ: other: 40 keV from ^{4}He(^{28}Si,α):resonances.
12190 *10*	0^+	22 keV	VW Z	XREF: Others: AA, AF E(level),Jπ: levels from all five different reactions have the exact same energies, but completely different spin parities. Adopted $J^\pi=0^+$ here is from (p,α),(p,p):resonances, and others are 0^-,1^-,2^- from L(d,n), 1^+ from (e,e′), and 4^+ from L(α,α')=4. No J^π is assigned to 12190 level in ($\pi^+,\pi^{+\prime}$). If all the different spin-parity assignments are considered correct, there would be at least four levels with the same energy.
12198	3^-	6.4 keV	L X	E(level),Jπ,Γ: from R-matrix analysis in (α,α):resonances.
12235 *10*	$(1^+,2^+,3^+)$		X	Jπ: L(^{3}He,d)=(2) from $1/2^+$.
12260		30 keV	F	E(level),Γ: from ^{4}He(^{28}Si,α):resonances.
12303 *10*	$(1^-,2^+)$	21 keV	V X	E(level): weighted average of 12297 *10* from (p,α):resonances and 12308 *10* from (^{3}He,d). Jπ: from $\sigma(\theta)$ in (p,α):resonances.
12340 *10*			X	
12362 *10*			X	
12391 *10*	(3^-)	4.8 keV	O VWX	E(level): weighted average of 12389 *10* from

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	T$_{1/2}$ or Γ#	XREF	Comments
				(p,α):resonances and 12393 *10* from (^{3}He,d).
				Jπ: 3$^-$,(2$^+$) from σ(θ) in (p,α):resonances; L(^{3}He,d)=1 from 1/2$^+$ suggests 0$^-$,1$^-$,2$^-$, probably indicating a different level.
12424 *10*	3$^-$	7.7 keV	F V X	XREF: F(12440)
				E(level): weighted average of 12422 *10* from (p,α) and 12426 *10* from (^{3}He,d).
				Jπ: from σ(θ) of (p,α):resonances.
12461 *10*	3$^-$,2$^+$	13.9 keV	V X	E(level): weighted average of 12457 *10* from (p,α) and 12465 *10* from (^{3}He,d).
				Jπ: from σ(θ) of (p,α):resonances.
12491			X	
12513 *10*	2$^+$	7.8 keV	F V	Jπ: from σ(θ) of (p,α):resonances.
				Γ: other: 30 keV from ^{4}He(^{28}Si,α):resonances, with J^{π}=3$^-$ assumed.
12540 *10*	(2$^+$)	18.6 keV	V	XREF: Others: AF
				XREF: AF(12510)
				Jπ: (2$^+$,1$^-$) from σ(θ) of (p,α):resonances; L(α,α′)=2 from 0$^+$ for a resonance at 12510.
12560	1$^+$			XREF: Others: AC
				E(level),Jπ: from (p,p′) with analysis of σ(θ), L(p,p′)=0.
12580 *10*	2$^+$	8.4 keV	V	E(level),Jπ: from σ(θ) of (p,α):resonances.
12596 *10*	2$^+$	3.0 keV	V	E(level),Jπ: from σ(θ) of (p,α):resonances.
12628 *10*	3$^-$,2$^+$	7.9 keV	VW	XREF: W(12630)
				E(level),Jπ: from σ(θ) of (p,α):resonances. But J^{π}=0$^-$,1$^-$,2$^-$ from L(d,n)=1 is inconsistent.
12630 *30*	6$^-$			XREF: Others: AA, AF
				E(level),Jπ: from (π$^+$,π$^{+\prime}$). But 4$^+$ from (α,α′) for a group at 12630 *50* is inconsistent, probably indicating a different level.
12650 *10*	1$^+$	<0.10 MeV	F Z	XREF: F(12650)
				E(level),Jπ: from (e,e′).
				Γ: from ^{4}He(^{28}Si,α):resonances.
12710	(5$^-$,3$^-$)	5 keV	F L	XREF: F(12730)L(12710)
				Jπ: (5$^-$) from (α,α):resonances and (3$^-$) from ^{4}He(^{28}Si,α):resonances.
				Γ: other: 30 keV from (^{28}Si,α):resonances.
12740 *40*	6$^-$		Z	XREF: Others: AA
				E(level),Jπ: from (e,e′) and (π$^+$,π$^{+\prime}$).
12760 *20*	6$^+$	84 keV *24*	I	E(level),Jπ,Γ: from (^{20}Ne,α).
12770	(2$^+$)	10 keV	L	
12830	(3$^-$)	1 keV	L	
12860	(3$^-$)	38 keV	F L	XREF: F(12880)
				Jπ,Γ: other: (3$^-$) and Γ=30 keV from (^{28}Si,α):resonances.
12910	(3$^-$)	8 keV	L	
12930	(3$^-$)	29 keV *5*	F L	Jπ,Γ: other: (3$^-$) and Γ=50 keV from (^{28}Si,α):resonances.
12980 *10*	1$^+$		Z	XREF: Others: AA
				E(level),Jπ: from (e,e′).
13040 *20*	(4$^+$)	<47 keV	F I	XREF: F(13050)
				E(level),Jπ,Γ: from (^{20}Ne,α). Other: Γ=50 keV in (^{28}Si,α):resonances.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
13086	(3⁻)	26 keV	F L	XREF: F(13110) Jπ,Γ: other: (3⁻) and Γ=60 keV from (^{28}Si,α):resonances.
13220		60 keV	F I	E(level),Γ: from (^{28}Si,α):resonances.
13230	1⁺			XREF: Others: AC E(level),Jπ: from σ(θ) of (p,p′), with L(p,p′)=0.
13260 *50*	6⁻		Z	XREF: Others: AA E(level),Jπ: from (e,e′).
13268	(3⁻)	49 keV *3*	F L	XREF: F(13270) Jπ,Γ: other: (3⁻) and Γ=50 keV from (^{28}Si,α):resonances.
13330 *50*	2⁺			XREF: Others: AF E(level),Jπ: from σ(θ) of (α,α′), with L(α,α′)=2.
13370	(3⁻)	28.8 keV *13*	F L	XREF: F(13360) Jπ,Γ: other: (3⁻) and Γ=50 keV from (^{28}Si,α):resonances.
13395 *10*	3⁻	10.5 keV	V	E(level),Jπ,Γ: from (p,α):resonances.
13400 *50*	4⁺			XREF: Others: AF E(level),Jπ: from σ(θ) of (α,α′), with L(α,α′)=4.
13410 *10*	1⁺,(2⁻)		Z	E(level),Jπ: from (e,e′).
13430	2⁻,3⁻,4⁻		W	Jπ: L(d,n)=3 from 1/2⁺.
13490	(3⁻)	54 keV *5*	F L	XREF: F(13500) Jπ,Γ: other: (3⁻) and Γ=50 keV from (^{28}Si,α):resonances.
13540 *50*	6⁻		Z	XREF: Others: AA E(level),Jπ: from (e,e′) and (π⁺,π⁺′).
13588	(3⁻)	18 keV *4*	F L	XREF: F(13560) Jπ,Γ: other: (3⁻) and Γ=50 keV from (^{28}Si,α):resonances.
13620	(3⁻)	50 keV	F O	XREF: O(13600) E(level),Jπ,Γ: from (^{28}Si,α):resonances.
13655	(3⁻)	74 keV *2*	F L	XREF: F(13670) Jπ,Γ: other: (3⁻) and Γ=50 keV from (^{28}Si,α):resonances.
13696	(4⁺)	23.6 keV *9*	L	
13760 *20*	6⁺	50 keV *24*	I	E(level),Jπ,Γ: from (^{20}Ne,α).
13780 *10*	1⁺		Z	XREF: Others: AC XREF: AC(13770) E(level),Jπ: from (e,e′). 1⁺ also from σ(θ) in (p,p′).
13807	(3⁻)	47.4 keV *8*	F L	XREF: F(13790) Jπ,Γ: other: (3⁻) and Γ=70 keV from (^{28}Si,α):resonances.
13870	(5⁻)	22.0 keV *11*	F L	XREF: F(13830) Jπ,Γ: other: (4⁺) and Γ=70 keV from (^{28}Si,α):resonances.
13896	(4⁺)	22.4 keV *1*	L	
13900	1⁺			XREF: Others: AC E(level),Jπ: from (p,p′).
13970 *10*	1⁺,(2⁻)		Z	XREF: Others: AF XREF: AF(13970) E(level),Jπ: from (e,e′). Other: 4⁺ from (α,α′) is inconsistent, probably indicating a different level.
14000 *20*	(7⁻)	50 keV *24*	I	E(level),Jπ,Γ: from (^{20}Ne,α).
14070	(3⁻)	29.6 keV *7*	f L	XREF: f(14030)

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
				J^π,Γ: other: (3^-) and Γ=60 keV from (^{28}Si,α):resonances.
14131	(5^-)	15.2 keV *6*	F I L	XREF: F(14110)I(14120) J^π,Γ: other: (5^-) and Γ=50 keV from (^{28}Si,α):resonances.
14177	(4^+)	42.0 keV *11*	F L	XREF: F(14160) J^π,Γ: other: (4^+) and Γ=50 keV from (^{28}Si,α):resonances.
14234	(3^-)	89 keV *2*	F L	XREF: F(14220) J^π,Γ: other: (3^-) and Γ=50 keV from (^{28}Si,α):resonances.
14290 *50*	6^-		Z	XREF: Others: AA E(level),J^π: from (e,e′) and (π^+,$\pi^{+\prime}$).
14370	(3^-)	0.11 MeV	F	E(level),J^π,Γ: from (^{28}Si,α):resonances.
14429	(3^-)	40 keV *2*	L	
14450 *10*	1^+		Z	E(level),J^π: from (e,e′).
14500			M O	XREF: M(14500)O(14500)
14542	(4^+,5^-)	84.5 keV *11*	F L	XREF: F(14550) E(level),J^π,Γ: from (α,α):resonances with $J^\pi=(4^+)$; (5^-) and Γ=70 keV from (^{28}Si,α):resonances.
14610			I	
14633	(5^-)	7.0 keV *9*	L	
14730		80 keV	FG	XREF: G(14700) E(level),Γ: from (^{28}Si,α):resonances.
14770 *10*	2^-		Z	E(level),J^π: from (e,e′).
14810 *20*	(8^+)	91 keV *24*	I	E(level),J^π,Γ: from (^{20}Ne,α).
14832	(4^+)	37.5 keV *5*	F L	XREF: F(14810) J^π,Γ: other: (4^+) and Γ=60 keV from (^{28}Si,α):resonances.
14878	(4^+)	25.5 keV *7*	L	
14880	1^+			XREF: Others: AC E(level),J^π: from $\sigma(\theta)$ in (p,p′), with L(p,p′)=0.
14960			I	
15025	(4^+)	30.5 keV *11*	F L	XREF: F(14980) J^π,Γ: other: (4^+) and Γ=40 keV from (^{28}Si,α):resonances.
15040	1			XREF: Others: AC E(level),J^π: from $\sigma(\theta)$ in (p,p′), with L(p,p′)=0.
15116	(5^-)	36 keV *2*	F L	XREF: F(15140) J^π,Γ: other: (5^-) and Γ=40 keV from (^{28}Si,α):resonances.
15.2×10^3 *1*	6^+	119 keV *24*	I	E(level),J^π,Γ: from (^{20}Ne,α).
15230	(4^+,5^-)	18 keV *2*	F L	XREF: F(15230) E(level),J^π,Γ: from (α,α):resonances with $J^\pi=(4^+)$; (5^-) and Γ=50 keV from (^{28}Si,α):resonances.
15344	(5^-)	45.9 keV *1*	F L	XREF: F(15330) J^π,Γ: other: (5^-) and Γ=50 keV from (^{28}Si,α):resonances.
15385	(5^-)	24.5 keV *6*	F L	XREF: F(15380) J^π,Γ: other: (5^-) and Γ=50 keV from (^{28}Si,α):resonances.
15441	(5^-)	34.3 keV *3*	F L	XREF: F(15440) J^π,Γ: other: (5^-) and Γ=50 keV from (^{28}Si,α):resonances.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF	Comments
15527	(5⁻)	46.8 keV *3*	F L	XREF: F(15530) Jπ,Γ: other: (5⁻) and Γ=80 keV from (^{28}Si,α):resonances.
15580	1⁺			XREF: Others: AC E(level),Jπ: from σ(θ) in (p,p′), with L(p,p′)=0 from 0⁺.
15600			M O	XREF: M(15600)O(15600)
15631	(5⁻)	29.9 keV *3*	F L	XREF: F(15610) Jπ,Γ: other: (5⁻) and Γ=50 keV from (^{28}Si,α):resonances.
15686	(5⁻,6⁺)	35.9 keV *1*	F L	XREF: F(15720)L(15686) E(level),Jπ,Γ: from (α,α):resonances with Jπ=(5⁻); (6⁺) and Γ=50 keV from (^{28}Si,α):resonances.
15700	1⁺			XREF: Others: AC E(level),Jπ: from σ(θ) in (p,p′), with L(p,p′)=0 from 0⁺.
15758	(6⁺,5⁻)	41.0 keV *9*	F L	XREF: F(15760) E(level),Jπ,Γ: from (α,α):resonances with Jπ=(6⁺); (5⁻) and Γ=50 keV from (^{28}Si,α):resonances.
15840	1			XREF: Others: AC E(level),Jπ: from σ(θ) in (p,p′), with L(p,p′)=0.
15847	(4⁺,5⁻)	47 keV *2*	F L	XREF: F(15820)L(15847) E(level),Jπ,Γ: from (α,α):resonances with Jπ=(4⁺); (5⁻) and Γ=50 keV from (^{28}Si,α):resonances.
15894	(5⁻,4⁺)	28.0 keV *8*	F L	XREF: F(15890)L(15894) E(level),Γ: from (α,α):resonances. Other: 50 keV from (^{28}Si,α):resonances. Jπ: (5⁻) from L(α,α)=(5), (4⁺) from L=(4) in (^{28}Si,α):resonances.
15955	(6⁺)	21.6 keV *5*	F I L	XREF: F(15960)I(15960) Jπ,Γ: other: (6⁺) and Γ=50 keV from (^{28}Si,α):resonances.
16052	(5⁻)	54 keV *2*	F L	XREF: F(16060) Jπ,Γ: other: (5⁻) and Γ=80 keV from (^{28}Si,α):resonances.
16160	(6⁺)	70 keV	F	E(level),Jπ,Γ: from (^{28}Si,α):resonances.
16243	(6⁺)	41.3 keV *8*	L	
16250	[5⁻]	70 keV	F	
16310 *70*	6⁻			XREF: Others: AA E(level),Jπ: from (π⁺,π⁺′).
16341	(5⁻)	86 keV *2*	F L	XREF: F(16330)L(16341) Jπ,Γ: other: (5⁻) and Γ=60 keV from (^{28}Si,α):resonances.
16370		50 keV	F	E(level),Γ: from (^{28}Si,α):resonances.
16430 *70*	6⁻		Z	E(level),Jπ: from (e,e′).
16495	(5⁻)	64 keV *3*	F L	XREF: F(16480)L(16495) Jπ,Γ: other: (5⁻) and Γ=50 keV from (^{28}Si,α):resonances.
16615	(6⁺)	60 keV *2*	F L	XREF: F(16650)L(16615) Jπ,Γ: other: (6⁺) and Γ=50 keV from (^{28}Si,α):resonances.
16650 *70*	6⁻			XREF: Others: AA E(level),Jπ: from (π⁺,π⁺′).
16691	(5⁻,6⁺)	23 keV *2*	F L	XREF: F(16690)L(16691)

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF				Comments
							E(level),Γ: from (α,α):resonances. Other: 16690 with Γ=50 keV in (^{28}Si,α):resonances. Jπ: (5⁻) from L(α,α)=(5) and (6⁺) from L=(6) in (^{28}Si,α):resonances.
16747	(6⁺)	45 keV *2*		L			
16795	(6⁺)	76 keV *6*	F	L			XREF: F(16780)L(16795) Jπ,Γ: other: (6⁺) and Γ=130 keV from (^{28}Si,α):resonances.
16866	(6⁺)	38.1 keV *6*	F	L			XREF: F(16870) Jπ,Γ: other: (6⁺) and Γ=50 keV from (^{28}Si,α):resonances.
16920	(6⁺)	35.0 keV *8*	F	L			XREF: F(16870) Jπ,Γ: other: (6⁺) and Γ=50 keV from (^{28}Si,α):resonances.
16978	(6⁺)	47 keV *3*	F	L			XREF: F(16970) Jπ,Γ: other: (6⁺) and Γ=70 keV from (^{28}Si,α):resonances.
17080	(6⁺)	0.07 MeV	F	L	o		XREF: F(17060)o(17100) Jπ,Γ: other: (6⁺) and Γ=70 keV from (^{28}Si,α):resonances.
17120 *70*	6⁻				o	Z	XREF: Others: AA XREF: o(17100)Z(17180) E(level),Jπ: from ($\pi^+,\pi^{+\prime}$).
17250	(5⁻)	92 keV *14*	F	L			XREF: F(17260) Jπ,Γ: other: (5⁻) and Γ=70 keV from (^{28}Si,α):resonances.
17350	(7⁻)	70 keV	F				E(level),Jπ,Γ: from (^{28}Si,α):resonances.
17393	(7⁻)	35 keV *6*	FG	L			XREF: F(17420)G(17400) Jπ,Γ: other: (7⁻) and Γ=70 keV from (^{28}Si,α):resonances.
17570		100 keV	F				E(level),Γ: from (^{28}Si,α):resonances.
17656	(7⁻)	36 keV *2*		L			
17688	(7⁻)	26 keV *2*	F	L			XREF: F(17690) Jπ,Γ: other: (7⁻) and Γ=80 keV from (^{28}Si,α):resonances.
17800	(7⁻)	70 keV	F				E(level),Jπ,Γ: from (^{28}Si,α):resonances.
17868	(6⁺)	82 keV *7*	F	L			XREF: F(17880) Jπ,Γ: other: [7⁻] and Γ=60 keV from (^{28}Si,α):resonances.
17934	(7⁻)	48 keV *4*	F	L			XREF: F(17940) Jπ,Γ: other: (7⁻) and Γ=70 keV from (^{28}Si,α):resonances.
18042	(7⁻)	44 keV *2*	F	L			XREF: F(18060) Jπ,Γ: other: (7⁻) and Γ=110 keV from (^{28}Si,α):resonances.
18213	(7⁻)	76 keV *7*	F	L			XREF: F(18220) Jπ,Γ: other: (7⁻) and Γ=100 keV from (^{28}Si,α):resonances.
18400		80 keV	F				E(level),Γ: (^{28}Si,α):resonances.
18458	(7⁻)	66 keV *5*	F	L			XREF: F(18470) Jπ,Γ: other: (7⁻) and Γ=100 keV from (^{28}Si,α):resonances.
18554	(7⁻)	73.6 keV *14*	F	L			XREF: F(18560)

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$ or Γ#	XREF		Comments
					Jπ,Γ: other: (7⁻) and Γ=70 keV from (^{28}Si,α):resonances.
18660	(7⁻)	74 keV *5*	F	L	XREF: F(18660) Jπ,Γ: other: (7⁻) and Γ=80 keV from (^{28}Si,α):resonances.
18736	(7⁻)	75 keV *6*	F	L	XREF: F(18750) Jπ,Γ: other: (7⁻) and Γ=70 keV from (^{28}Si,α):resonances.
18803	(8⁺)	46 keV *3*	F	L	XREF: F(18810) Jπ,Γ: other: [7⁻] and Γ=60 keV from (^{28}Si,α):resonances.
18890		70 keV	F		E(level),Γ: (^{28}Si,α):resonances.
18986	(8⁺,7⁻)	34 keV *2*	F	L	XREF: F(18980) E(level),Γ: from (α,α):resonances. Other: 18980 with Γ=60 keV from (^{28}Si,α):resonances. Jπ: (8⁺) from L(α,α′)=(8), (7⁻) from L=(7) in (^{28}Si,α):resonances.
19119	(8⁺,7⁻)	84 keV *7*	F	L	XREF: F(19120) E(level),Γ: from (α,α):resonances. Other: 19120 with Γ=70 keV from (^{28}Si,α):resonances. Jπ: (8⁺) from L(α,α′)=(8), (7⁻) from L=(7) in (^{28}Si,α):resonances.
19190		60 keV	F		E(level),Γ: (^{28}Si,α):resonances.
19248	(8⁺)	54 keV *10*	F	L	XREF: F(19250) Jπ,Γ: other: [7⁻] and Γ=70 keV from (^{28}Si,α):resonances.
19320	(8⁺)	70 keV	F		E(level),Jπ,Γ: (^{28}Si,α):resonances.
19442	(7⁻)	72 keV *2*	F	L	XREF: F(19450) Jπ,Γ: other: [7⁻] and Γ=60 keV from (^{28}Si,α):resonances.
19551	(8⁺)	75 keV *18*	F	L	XREF: F(19500) Jπ,Γ: other: (8⁺) and Γ=70 keV from (^{28}Si,α):resonances.
19610	(8⁺)	90 keV	F	l	XREF: l(19653) E(level),Jπ,Γ: from (^{28}Si,α):resonances. Other: 19653, (8⁺), Γ=54 keV *2* from (α,α):resonances.
19690	(8⁺)	70 keV	F	l	XREF: l(19653) E(level),Jπ,Γ: from (^{28}Si,α):resonances. Other: 19653, (8⁺), Γ=54 keV *2* from (α,α):resonances.
19747	(8⁺,7⁻)	79 keV *9*	F	L	XREF: F(19800) E(level),Γ: from (α,α):resonances. Other: 19800 with Γ=90 keV from (^{28}Si,α):resonances. Jπ: (8⁺) from L(α,α′)=(8), (7⁻) from L=(7) in (^{28}Si,α):resonances.
20090		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
20200		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
20275	(7⁻)	44 keV *4*	F	L	XREF: F(20270) Jπ,Γ: other: [8⁺] and Γ=70 keV from (^{28}Si,α):resonances.
20320	(8⁺)	70 keV	F		E(level),Jπ,Γ: from (^{28}Si,α):resonances.
20381	(8⁺)	72 keV *17*	F	L	XREF: F(20410) Jπ,Γ: other: (8⁺) and Γ=80 keV from (^{28}Si,α):resonances.

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$ or Γ[#]	XREF		Comments
20485	(8^+)	84 keV *4*	F	L	XREF: F(20530) Jπ,Γ: other: (8^+) and Γ=80 keV from (^{28}Si,α):resonances.
20610		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
20703	(8^+)	37 keV *4*	F	L	XREF: F(20680) Jπ,Γ: other: (8^+) and Γ=70 keV from (^{28}Si,α):resonances.
20750	(8^+)	70 keV	F		E(level),Jπ,Γ: from (^{28}Si,α):resonances.
20800		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
20835	(8^+)	59 keV *2*	F	L	XREF: F(20860) Jπ,Γ: other: (8^+) and Γ=60 keV from (^{28}Si,α):resonances.
20950		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
21050		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
21212	(9^-)	69 keV *3*	F	L	XREF: F(21280) Jπ,Γ: other: (9^-) and Γ=70 keV from (^{28}Si,α):resonances.
21395	(9^-)	70 keV *5*	F	L	XREF: F(21430) Jπ,Γ: other: (9^-) and Γ=70 keV from (^{28}Si,α):resonances.
21457	(9^-)	45 keV *4*	F	L	XREF: F(21490) Jπ,Γ: other: (9^-) and Γ=70 keV from (^{28}Si,α):resonances.
21532	(9^-)	39 keV *10*	F	L	XREF: F(21590) Jπ,Γ: other: (9^-) and Γ=70 keV from (^{28}Si,α):resonances.
21720		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
21783	(8^+,9^-)	53 keV *2*	F	L	XREF: F(21810) E(level),Jπ,Γ: from (α,α):resonances with Jπ=(8^+); (9^-) and Γ=80 keV from (^{28}Si,α):resonances.
22000		100 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
22135	(9^-)	74 keV *4*	F	L	XREF: F(22170) Jπ,Γ: other: (9^-) and Γ=100 keV from (^{28}Si,α):resonances.
22205	(9^-)	54 keV *9*	F	L	XREF: F(22240) Jπ,Γ: other: (9^-) and Γ=100 keV from (^{28}Si,α):resonances.
22308	(9^-)	47 keV *14*	F	L	XREF: F(22310) Jπ,Γ: other: (9^-) and Γ=70 keV from (^{28}Si,α):resonances.
22355	(8^+)	24 keV *5*	F	L	XREF: F(22390) Jπ,Γ: other: (8^+) and Γ=90 keV from (^{28}Si,α):resonances.
22.42×10^3 *74*	2^+	9.41 MeV			XREF: Others: AF E(level),Jπ,Γ: from (α,α′) for isoscalar giant monopole resonance.
22590		70 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
22710		100 keV	F		E(level),Γ: from (^{28}Si,α):resonances.
22846	(9^-)	51 keV *5*	F	L	XREF: F(22810) Γ: other: 100 keV from (^{28}Si,α):resonances.
22964	(10^+,9^-)	58 keV *3*	F	L	XREF: F(23030) E(level),Jπ,Γ: from (α,α):resonances with

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
				J^{π}=(10$^+$); (9$^-$) and Γ=80 keV from (^{28}Si,α):resonances.
23160	(9$^-$)	70 keV	F	E(level),J$^{\pi}$,Γ: from (^{28}Si,α):resonances.
23226	(9$^-$)	74 keV *16*	F L	XREF: F(23260) J$^{\pi}$,Γ: other: (9$^-$) and Γ=200 keV from (^{28}Si,α):resonances.
23296	(9$^-$)	52 keV *7*	F L	XREF: F(23260) J$^{\pi}$,Γ: other: (9$^-$) and Γ=200 keV from (^{28}Si,α):resonances.
23493	(10$^+$)	93 keV *12*	F L	XREF: F(23430) J$^{\pi}$,Γ: other: Γ=200 keV from (^{28}Si,α):resonances.
23.65×10^3 *63*	0$^+$	9.43 MeV		XREF: Others: AF E(level),J$^{\pi}$,Γ: from (α,α′) for isoscalar giant monopole resonance.
23750?		100 keV	F	E(level),Γ: from (^{28}Si,α):resonances.
23.86×10^3	7$^-$	≈100 keV	L	
24.93×10^3	8$^+$	≈100 keV	L	
>25×10^3	(4$^+$)			XREF: Others: AF E(level),J$^{\pi}$: from (α,α′), E4 resonance.
25.6×10^3 *8*		7.3 MeV *13*	G	E(level),Γ: from (^{20}Ne,X):resonances, giant dipole resonance (GDR).
26.90×10^3	11$^-$	≈200 keV	L	
27.25×10^3	9$^-$	80 keV	L	
27.44×10^3	8$^+$	40 keV	L	
27.69×10^3	9$^-$	150 keV	L	
27.82×10^3	9$^-$	110 keV	L	
28.04×10^3	10$^+$	40 keV	L	
28.17×10^3	10$^+$	70 keV	L	
28.30×10^3	8$^+$	80 keV	L	
28.48×10^3	10$^+$	170 keV	L	
28.67×10^3	10$^+$	220 keV	L	
28.97×10^3	10$^+$	190 keV	L	
29.25×10^3	9$^-$	130 keV	L	
29.66×10^3	10$^+$	160 keV	L	
29.88×10^3	10$^+$	200 keV	L	
29.91×10^3	10$^+$	160 keV	L	
30.26×10^3	9$^-$	170 keV	L	
30.37×10^3	10$^+$	130 keV	L	
30.61×10^3	11$^-$	250 keV	L	
30.89×10^3	12$^+$	140 keV	H L	J$^{\pi}$: other: 10$^+$ from (^{16}O,X):resonance.
30.93×10^3?	(6$^+$)		H	
31.11×10^3	10$^+$		H	
31.19×10^3	12$^+$	200 keV	L	
31.33×10^3	10$^+$		H	
31.4×10^3 *75*	3$^-$			XREF: Others: AF E(level),J$^{\pi}$: from (α,α′), high-energy octupole resonance.
31.64×10^3	10$^+$		H	
31.71×10^3	9$^-$	220 keV	L	
31900	8$^+$		G	

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Adopted Levels, Gammas (continued)

^{32}S Levels (continued)

E(level)[†]		J^{π}[‡]	$T_{1/2}$ or Γ[#]	XREF	Comments
31.98×10^3		12$^+$	220 keV	L	
32.14×10^3		12$^+$		H	
32200		10$^+$		G	
32.37×10^3		10$^+$	40 keV	H	
32.49×10^3		12$^+$	80 keV	H	
32.64×10^3		9$^-$,(8$^+$)	60 keV	GH	
32.7×10^3			≈300 keV	L	
32.84×10^3		8$^+$		H	
32.89×10^3		10$^+$		H	
33.03×10^3	*12*	(10,12)		J	
33100		8$^+$		G	
33400		11$^-$		G	
33.5×10^3			≈20 keV	L	
33.64×10^3		10$^+$		H	
33.84×10^3		12$^+$	156 keV	H	
34.24×10^3?		(12$^+$)	156 keV	H	
34.69×10^3	*8*	(12,14)		J	
35.64×10^3	*6*	(12,14)		J	
37.55×10^3	*11*	(14,16)		J	
38.32×10^3	*12*	(14,16)		J	
39.5×10^3		16$^+$		H	
42.0×10^3		18$^+$		H	
43.0×10^3		18$^+$		H	
44.0×10^3		18$^+$		H	
45.8×10^3		20$^+$,22$^+$		H	
48.5×10^3		20$^+$		H	
<50×10^3					XREF: Others: AF E(level): from (α,α'), isoscalar giant dipole resonance.
50.1×10^3		22$^+$,26$^+$		H	
54.7×10^3		24$^+$		H	

[†] From a least-squares fit to γ-ray energies with uncertainties for levels connected with γ transitions, from (p,γ) E=res up to 12048 level and from (α,α):resonances above that for other levels, unless otherwise noted.

[‡] From resonances above 12408 level, spin-parities are from analysis of $\sigma(\theta)$ from ^{28}Si(α,α):resonances, unless otherwise noted.

[#] Half-life from DSAM (p,γ) E=res, width from (p,p),(p,α):res up to 12048 level and from (α,α):resonances above that, unless otherwise noted.

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$

Additional information 112.

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	$I_{(\gamma+ce)}$	Comments
2230.68	2^+	2230.47 *15*	100	0.0	0^+	E2		0.000436 *6*		α(K)=8.37×10^{-6} *12*; α(L)=6.45×10^{-7} *9*; α(M)=5.44×10^{-8} *8* α(IPF)=0.000427 *6* B(E2)(W.u.)=9.9 *6* E_γ: weighted average of 2230.2 *4* from ^{32}Cl ε decay, 2230.3 *5* from ^{33}Ar εp decay, 2230.49 *15* from (γ,γ'), and 2231.7 *10* from (p,p$'\gamma$). Others: 2240 *30* from (^{31}P,nγ), 2240 *10* from (n,n$'\gamma$). Mult.: Q from p$\gamma(\theta)$ in (p,p$'\gamma$); M2 ruled out by RUL.
3778.52	0^+	1547.2 *4*	100.0[#] *13*	2230.68	2^+	[E2]		0.0001250 *18*		B(E2)(W.u.)=12.7 *+12−10* α(K)=1.664×10^{-5} *23*; α(L)=1.283×10^{-6} *18*; α(M)=1.082×10^{-7} *15* α(IPF)=0.0001070 *15* E_γ: weighted average of 1547.1 *4* from ^{32}Cl ε decay, and 1548.8 *15* from (p,p$'\gamma$).
		3779.5 *8*		0.0	0^+	[E0]			1.4 *6*	E_γ,$I_{(\gamma+ce)}$: from ^{32}Cl ε decay. q^2_K(E0/E2)=0.042 *8*, X(E0/E2)=0.048 *8*, ρ^2=0.0164 *33* using a $T_{1/2}$=0.89 ps *9* (2022Ki03 evaluation). Using the adopted $T_{1/2}$=0.82 ps *7* and E0 branching here with adopted X(E0/E2)=0.048 *8* in 2022Ki03, the evaluator has deduced ρ^2=0.0175 *33*.
4282.02	2^+	2051.0 *4*	15.8 *7*	2230.68	2^+	E2+M1	−16 *+6−26*	0.000350 *5*		B(M1)(W.u.)=4×10^{-5} *+6−3*; B(E2)(W.u.)=9.2 *+11−10* α(K)=9.71×10^{-6} *14*; α(L)=7.48×10^{-7} *10*; α(M)=6.31×10^{-8} *9* α(IPF)=0.000339 *5* E_γ: weighted average of 2050.9 *4* from ^{32}Cl ε decay and 2052.6 *15* from (p,p$'\gamma$). Other: 2070 *30* from (n,n$'\gamma$). I_γ: weighted average of 17.5 *10* from ^{32}Cl ε decay, 14.9 *6* from (p,γ) E=res, and 16.3 *8* from (p,p$'\gamma$). Other: 7.5 *22* from (α,nγ) is discrepant. Mult.,δ: D+Q from $\gamma(\theta)$ in ^{31}P(p,p$'\gamma$); M2 ruled out by RUL. Other: +29 *17* from (p,γ) E=res.

$^{32}_{16}S_{16}$-28

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
4282.02	2^+	4281.56 *30*	100.0 *6*	0.0	0^+	E2		1.27×10^{-3} *2*	α(K)=3.01×10^{-6} *4*; α(L)=2.314×10^{-7} *32*; α(M)=1.953×10^{-8} *27* α(IPF)=0.001269 *18* B(E2)(W.u.)=1.48 *+17−14* E_γ: weighted average of 4281.7 *7* from ^{32}Cl ε decay, 4281.53 *30* from (γ,γ'), and 4281.8 *15* from (p,p$'\gamma$). Other: 4320 *30* from (n,n$'\gamma$). I_γ: from (p,γ) E=res. Others: 100.0 *24* from ^{32}Cl ε decay, 100.0 *22* from (α,nγ), and 100.0 *23* from (p,p$'\gamma$).
4460.2	4^+	2229.4 *12*	100	2230.68	2^+	E2		0.000436 *6*	B(E2)(W.u.)=14.3 *+29−20* α(K)=8.37×10^{-6} *12*; α(L)=6.45×10^{-7} *9*; α(M)=5.44×10^{-8} *8* α(IPF)=0.000427 *6* E_γ: from (p,p$'\gamma$). Mult.: Q, ΔJ=2 from $\gamma\gamma(\theta)$ in (p,p$'\gamma$); M2 ruled out by RUL.
4695.65	1^+	916.0[#] *5*	0.57[#] *17*	3778.52	0^+	[M1]			B(M1)(W.u.)=0.00039 *+13−12*
		2464.5 *5*	100.0[#] *17*	2230.68	2^+	M1+E2	−0.47 *+15−23*	0.000466 *16*	B(M1)(W.u.)=0.0029 *+5−6*; B(E2)(W.u.)=0.4 *+4−2* α(K)=6.65×10^{-6} *12*; α(L)=5.13×10^{-7} *9*; α(M)=4.32×10^{-8} *8* α(IPF)=0.000459 *16* E_γ: weighted average of 2464.3 *5* from ^{32}Cl ε decay and 2466.0 *15* from (p,p$'\gamma$). I_γ: from ^{32}Cl ε decay. Others: 100 *18* from (^{31}P,nγ), 100 *5* from (α,nγ), 100.0 *17* from (p,γ) E=res, and 100 *5* from (p,p$'\gamma$). Mult.,δ: D+Q from p$\gamma(\theta)$ in (p,p$'\gamma$); E1+M2 ruled out by RUL. Other: δ(Q/D)=−0.08 *11* from $\gamma(\theta)$ in (p,γ) E=res.
		4695.2 *8*	67.9 *31*	0.0	0^+	[M1]		1.25×10^{-3} *2*	B(M1)(W.u.)=3.4×10^{-4} *+5−4* α(K)=2.57×10^{-6} *4*; α(L)=1.979×10^{-7} *28*; α(M)=1.670×10^{-8} *23* α(IPF)=0.001251 *18* E_γ: weighted average of 4695.3 *8* from ^{32}Cl ε decay and 4694.0 *25* from (p,p$'\gamma$). I_γ: unweighted average of 57.8 *12* from ^{32}Cl ε decay, 74 *15* from (^{31}P,nγ), 72 *5* from (α,nγ), 63.9 *17* from (p,γ) E=res, and 72 *5* from (p,p$'\gamma$).

$^{32}_{16}S_{16}$-29

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
5006.0	3^-	2775.4 *5*	100.0 *4*	2230.68	2^+	(E1(+M2))[&]	0.00 *5*	1.13×10^{-3} *2*	B(E1)(W.u.)=5.83×10^{-5} *+48−43*; B(M2)(W.u.)<0.17 α(K)=3.90×10^{-6} *6*; α(L)=3.00×10^{-7} *4*; α(M)=2.53×10^{-8} *4* α(IPF)=0.001127 *16* E_γ: weighted average of 2775.2 *5* from ^{32}Cl ε decay and 2776.2 *12* from (p,p′γ). Other: 2750 *20* from (n,n′γ). I_γ: from (p,γ) E=res. Others: 100 *11* from ^{32}Cl ε decay and 100.0 *10* from (α,nγ).
		5005.6	3.4 *4*	0.0	0^+	[E3]		1.18×10^{-3} *2*	B(E3)(W.u.)=16.0 *+23−21* α(K)=3.04×10^{-6} *4*; α(L)=2.344×10^{-7} *33*; α(M)=1.978×10^{-8} *28* α(IPF)=0.001182 *17* I_γ: weighted average of 3.1 *10* from (α,nγ) and 3.5 *4* from (p,γ) E=res.
5412.4	3^+	3181.6	100 *4*	2230.68	2^+	M1+E2	+6.9 *+24−14*	0.000864 *12*	B(M1)(W.u.)=1.0×10^{-4} *+6−5*; B(E2)(W.u.)=2.05 *+25−21* α(K)=4.67×10^{-6} *7*; α(L)=3.59×10^{-7} *5*; α(M)=3.03×10^{-8} *4* α(IPF)=0.000859 *12* I_γ: from (p,p′γ). Mult.,δ: D+Q from $\gamma(\theta)$ in (p,γ) E=res; M2 ruled out by RUL.
		5411.9	4 *4*	0.0	0^+	[M3]		0.000975 *14*	α(K)=3.32×10^{-6} *5*; α(L)=2.56×10^{-7} *4*; α(M)=2.159×10^{-8} *30* α(IPF)=0.000971 *14* I_γ: from (p,p′γ). Other: <5 from (p,γ) E=res. B(M3)(W.u.)<3142 upper limit exceeds RUL=10.
5548.60	2^+	852.3[#] *6*	0.77[#] *28*	4695.65	1^+	[M1,E2]		5.9×10^{-5} *13*	α(K)=5.5×10^{-5} *12*; α(L)=4.2×10^{-6} *10*; α(M)=3.6×10^{-7} *8* B(M1)(W.u.)=0.0030 *+12−11* if M1, B(E2)(W.u.)=18 *7* if E2.
		1266.2[#] *6*	0.9[#] *4*	4282.02	2^+	[M1,E2]		4.3×10^{-5} *6*	α(K)=2.28×10^{-5} *27*; α(L)=1.76×10^{-6} *21*; α(M)=1.48×10^{-7} *18* α(IPF)=1.82×10^{-5} *35* B(M1)(W.u.)=0.0011 *5* if M1, B(E2)(W.u.)=2.9 *+14−12* if E2.
		1769.7[#] *4*	5.1[#] *5*	3778.52	0^+	[E2]		0.0002181 *31*	α(K)=1.277×10^{-5} *18*; α(L)=9.85×10^{-7} *14*;

$^{32}_{16}S_{16}$-30

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									α(M)=8.31×10^{-8} *12* α(IPF)=0.0002043 *29* B(E2)(W.u.)=3.1 *+5−4*
5548.60	2$^+$	3318.0 *6*	100.0[#] *20*	2230.68	2$^+$	M1+E2	−6.3 *+11−32*	0.000918 *13*	B(M1)(W.u.)=1.6×10^{-4} *8*; B(E2)(W.u.)=2.52 *+33−27* α(K)=4.37×10^{-6} *6*; α(L)=3.37×10^{-7} *5*; α(M)=2.84×10^{-8} *4* α(IPF)=0.000914 *13* E_γ: weighted average of 3317.9 *6* from ^{32}Cl ε decay and 3318.5 *20* from (p,p′γ). I_γ: others: 100 *10* from (α,nγ), 100.0 *25* from (p,γ) E=res, and 100 *9* from (p,p′γ).
		5548.9[#] *9*	66.2 *25*	0.0	0$^+$	E2		1.64×10^{-3} *2*	α(K)=2.102×10^{-6} *29*; α(L)=1.618×10^{-7} *23*; α(M)=1.365×10^{-8} *19* α(IPF)=0.001637 *23* B(E2)(W.u.)=0.131 *+18−14* I_γ: weighted average of 63 *6* from ^{32}Cl ε decay, 61 *10* from (α,nγ), 66.7 *25* from (p,γ) E=res, and 66.7 *33* from (p,p′γ). Mult.: Q from $\gamma(\theta)$ in (p,γ) E=res; M2 ruled out by RUL.
5797.0	1$^-$	5796.4 *5*	100	0.0	0$^+$	[E1]		2.24×10^{-3} *3*	α(K)=1.598×10^{-6} *22*; α(L)=1.229×10^{-7} *17*; α(M)=1.037×10^{-8} *15* α(IPF)=0.002238 *31* B(E1)(W.u.)=0.00059 *+11−8* E_γ: weighted average of 5798.4 *13* from ^{32}Cl ε decay and 5796.25 *34* from (γ,γ').
6222.7	2$^-$	1216.7	3.1 *21*	5006.0	3$^-$	[M1,E2]		3.7×10^{-5} *5*	α(K)=2.47×10^{-5} *31*; α(L)=1.91×10^{-6} *24*; α(M)=1.61×10^{-7} *20* α(IPF)=1.01×10^{-5} *20* B(M1)(W.u.)=0.0064 *+46−33* if M1, B(E2)(W.u.)=19 *+13−10* if E2.
		3991.8	100.0 *21*	2230.68	2$^+$	(E1+M2)[&]	−0.07 *3*	1.68×10^{-3} *2*	B(E1)(W.u.)=1.78×10^{-4} *+25−21*; B(M2)(W.u.)=0.25 *+27−17* α(K)=2.48×10^{-6} *4*; α(L)=1.909×10^{-7} *28*; α(M)=1.611×10^{-8} *23* α(IPF)=0.001672 *24* E_γ,I_γ: other: 3993.0 *20* from (p,p′γ). δ: other: +0.1 *1* from p$\gamma(\theta)$ in (p,p′γ).
6411	4$^+$	4180	100	2230.68	2$^+$	[E2]		1.24×10^{-3} *2*	α(K)=3.11×10^{-6} *4*; α(L)=2.395×10^{-7} *34*; α(M)=2.021×10^{-8} *28*

$^{32}_{16}S_{16}$-31

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									α(IPF)=0.001232 *17* B(E2)(W.u.)=3.0 *+5−4*
6582	0^+	4351		2230.68	2^+				E_γ: γ seen in (p,p′γ) only.
6621.5	4^-	1209.1	1.9 *3*	5412.4	3^+	[E1]		7.77×10^{-5} *11*	B(E1)(W.u.)=1.4×10^{-5} *+4−3* α(K)=1.364×10^{-5} *19*; α(L)=1.052×10^{-6} *15*; α(M)=8.87×10^{-8} *12* α(IPF)=6.29×10^{-5} *9*
		1615.5	100.0 *14*	5006.0	3^-	M1+E2	+4.8 *6*	0.0001508 *22*	B(M1)(W.u.)=0.00044 *+17−10*; B(E2)(W.u.)=16.6 *+32−24* α(K)=1.517×10^{-5} *21*; α(L)=1.170×10^{-6} *16*; α(M)=9.87×10^{-8} *14* α(IPF)=0.0001344 *19* I_γ: other: 100 *6* from (p,p′γ).
		2161.2	32.9 *10*	4460.2	4^+	(E1+M2)[&]	−0.05 *2*	0.000758 *11*	B(E1)(W.u.)=4.4×10^{-5} *+9−6*; B(M2)(W.u.)=0.11 *+11−7* α(K)=5.49×10^{-6} *8*; α(L)=4.23×10^{-7} *6*; α(M)=3.57×10^{-8} *5* α(IPF)=0.000752 *11* I_γ: other: 12 *4* from (p,p′γ) is discrepant.
		4390.5	4.1 *4*	2230.68	2^+	M2+E3	−0.41 *8*	0.000913 *14*	B(M2)(W.u.)=0.134 *+31−24*; B(E3)(W.u.)=7.6 *+33−27* α(K)=3.71×10^{-6} *5*; α(L)=2.85×10^{-7} *4*; α(M)=2.409×10^{-8} *34* α(IPF)=0.000909 *14* I_γ: other: 11 *4* from (p,p′γ) is discrepant.
6665.76	2^+	1659.9[#] *5*	4.1[#] *11*	5006.0	3^-	[E1]		0.000401 *6*	α(K)=8.08×10^{-6} *11*; α(L)=6.22×10^{-7} *9*; α(M)=5.25×10^{-8} *7* α(IPF)=0.000392 *6* B(E1)(W.u.)=6.8×10^{-5} *+30−21*
		1970.1[#] *5*	14.0[#] *20*	4695.65	1^+	[M1,E2]		0.000278 *34*	α(K)=9.9×10^{-6} *5*; α(L)=7.6×10^{-7} *4*; α(M)=6.4×10^{-8} *4* α(IPF)=0.000267 *33* I_γ: other: 29 *4* from (p,γ) E=res is discrepant. B(M1)(W.u.)=0.0046 *+16−10* if M1, B(E2)(W.u.)=5.0 *+17−11* if E2.
		2383.5[#] *5*	6.2[#] *7*	4282.02	2^+	[M1,E2]		0.00046 *5*	α(K)=7.19×10^{-6} *29*; α(L)=5.54×10^{-7} *22*; α(M)=4.67×10^{-8} *19* α(IPF)=0.00045 *5* B(M1)(W.u.)=0.00114 *+38−25* if M1, B(E2)(W.u.)=0.86 *+28−19* if E2.
		2886.9[#] *5*	100.0[#] *28*	3778.52	0^+	E2		0.000741 *10*	α(K)=5.44×10^{-6} *8*; α(L)=4.19×10^{-7} *6*; α(M)=3.54×10^{-8} *5*

$^{32}_{16}S_{16}$-32

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									α(IPF)=0.000735 *10* B(E2)(W.u.)=5.3 *+16−10* E_γ: other: 2887.9 *20* from (p,p′γ). I_γ: other: 100 *10* from (p,γ) E=res; 100 *11* from (p,p′γ).
6665.76	2+	4435.0[#] *8*	76.8[#] *31*	2230.68	2+	[M1,E2]		0.00125 *8*	α(K)=2.82×10^{-6} *6*; α(L)=2.17×10^{-7} *4*; α(M)=1.83×10^{-8} *4* α(IPF)=0.00125 *8* I_γ: others: 76 *8* from (p,γ) E=res; 113 *11* from (p,p′γ) is discrepant. B(M1)(W.u.)=0.0022 *+7−4* if M1, B(E2)(W.u.)=0.48 *+15−9* if E2.
		6665.2[#] *16*	3.8[#] *7*	0.0	0+	[E2]			B(E2)(W.u.)=0.0031 *+12−8*
6761.6	5−	1755.6	100 *41*	5006.0	3−	E2		0.0002119 *30*	B(E2)(W.u.)=16.1 *+32−35* α(K)=1.297×10^{-5} *18*; α(L)=1.000×10^{-6} *14*; α(M)=8.43×10^{-8} *12* α(IPF)=0.0001979 *28* E_γ: Q, ΔJ=2 from n$\gamma(\theta)$ in (α,nγ); M2 ruled out by RUL.
		2301.3	32 *14*	4460.2	4+	(E1+M2)[&]	+0.12 *3*	0.000842 *13*	B(E1)(W.u.)=5.0×10^{-5} *+29−20*; B(M2)(W.u.)=0.6 *+6−4* α(K)=5.10×10^{-6} *9*; α(L)=3.93×10^{-7} *7*; α(M)=3.31×10^{-8} *6* α(IPF)=0.000837 *13*
6852.4	4+	1440.0	13 *6*	5412.4	3+	M1+E2	−0.27 *7*	6.68×10^{-5} *12*	α(K)=1.621×10^{-5} *26*; α(L)=1.250×10^{-6} *20*; α(M)=1.054×10^{-7} *17* α(IPF)=4.92×10^{-5} *10* B(M1)(W.u.)=0.011 *+6−5*; B(E2)(W.u.)=1.6 *+14−10* I_γ: other: 12 *8* from (p,p′γ).
		2392.1	16 *6*	4460.2	4+	M1+E2	−0.93 *+26−44*	0.000462 *19*	α(K)=7.13×10^{-6} *14*; α(L)=5.49×10^{-7} *11*; α(M)=4.63×10^{-8} *9* α(IPF)=0.000455 *19* B(M1)(W.u.)=0.0016 *+10−8*; B(E2)(W.u.)=1.0 *+7−5* I_γ: weighted average of 13 *6* from (p,γ) E=res and 23 *10* from (p,p′γ). Mult.,δ: D+Q from $\gamma(\theta)$ in (α,nγ); M2 ruled out by RUL.
		2570.3	100 *11*	4282.02	2+	E2		0.000597 *8*	B(E2)(W.u.)=9.8 *+34−22* α(K)=6.57×10^{-6} *9*; α(L)=5.06×10^{-7} *7*;

$^{32}_{16}S_{16}$-33

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	α[†]	Comments
								α(M)=4.27×10^{-8} *6* α(IPF)=0.000590 *8* I_γ: from (p,p′γ). Other: 100 *13* from (p,γ) E=res.
7001.13	1$^+$	1452.0[#] *4*	1.21[#] *10*	5548.60	2$^+$			
		2305.2[#] *5*	0.75[#] *4*	4695.65	1$^+$	[M1,E2]	0.00043 *5*	α(K)=7.60×10^{-6} *32*; α(L)=5.85×10^{-7} *25*; α(M)=4.94×10^{-8} *21* α(IPF)=0.00042 *5* B(M1)(W.u.)=0.0083 *+42−21* if M1, B(E2)(W.u.)=6.6 *+33−17* if E2.
		2718.9[#] *5*	2.44[#] *15*	4282.02	2$^+$	[M1,E2]	0.00061 *6*	α(K)=5.82×10^{-6} *19*; α(L)=4.48×10^{-7} *15*; α(M)=3.78×10^{-8} *13* α(IPF)=0.00060 *6* B(M1)(W.u.)=0.016 *+8−4* if M1, B(E2)(W.u.)=9.4 *+48−24* if E2.
		3222.3[#] *6*	4.01 *34*	3778.52	0$^+$	[M1]	0.000754 *11*	α(K)=4.38×10^{-6} *6*; α(L)=3.37×10^{-7} *5*; α(M)=2.84×10^{-8} *4* α(IPF)=0.000749 *10* B(M1)(W.u.)=0.016 *+8−4* I_γ: weighted average of 3.99 *29* from ^{32}Cl ε decay and 11 *6* from (p,γ) E=res.
		4770.42 *33*	100.0[#] *9*	2230.68	2$^+$	[M1,E2]	0.00135 *8*	α(K)=2.55×10^{-6} *5*; α(L)=1.96×10^{-7} *4*; α(M)=1.656×10^{-8} *31* α(IPF)=0.00135 *8* E_γ: weighted average of 4770.0 *8* from ^{32}Cl ε decay and 4770.49 *33* from (p,γ) E=res. I_γ: other: 100 *6* from (p,γ) E=res. B(M1)(W.u.)=0.12 *+6−3* if M1, B(E2)(W.u.)=23 *+12−6* if E2.
		7001.0[#] *15*	0.267[#] *34*	0.0	0$^+$	[M1]		B(M1)(W.u.)=1.1×10^{-4} *+6−3*
7114.6	2$^+$	2418.1[#] *5*	11.2 *12*	4695.65	1$^+$	[M1,E2]	0.00048 *5*	α(K)=7.02×10^{-6} *28*; α(L)=5.41×10^{-7} *21*; α(M)=4.56×10^{-8} *18* α(IPF)=0.00047 *5* I_γ: weighted average of 12.8 *19* from ^{32}Cl ε decay and 10.5 *12* from (p,γ) E=res. Note that 1973Mo06 in (p,p′γ) report a 2656γ with a branching similar to that of 2418γ here seen in other studies including the most recent one while report no observation of the 2418γ. The evaluator consider the 2656γ from 1973Mo06 questionable. B(M1)(W.u.)=0.084 *+24−17* if M1, B(E2)(W.u.)=62 *+18−12* if E2.
		2831.4[#] *9*	3.8 *12*	4282.02	2$^+$	[M1,E2]	0.00066 *6*	α(K)=5.46×10^{-6} *17*; α(L)=4.20×10^{-7} *13*; α(M)=3.55×10^{-8} *11* α(IPF)=0.00065 *6* I_γ: weighted average of 4.3 *17* from ^{32}Cl ε decay and 3.5 *12* from (p,γ) E=res. B(M1)(W.u.)=0.018 *+8−6* if M1, B(E2)(W.u.)=9.5 *+40−32* if E2.
		3339.2[#] *8*	5.6[#] *19*	3778.52	0$^+$	[E2]	0.000930 *13*	α(K)=4.34×10^{-6} *6*; α(L)=3.34×10^{-7} *5*; α(M)=2.82×10^{-8} *4* α(IPF)=0.000926 *13* B(E2)(W.u.)=6.1 *+27−22*

$^{32}_{16}S_{16}$-34

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
7114.6	2$^+$	4883.2[#] *8*	100.0 *23*	2230.68	2$^+$	M1+E2	+0.38 *3*	1.32×10^{-3} *2*	B(M1)(W.u.)=0.080 *+21−14*; B(E2)(W.u.)=2.1 *+6−4* α(K)=2.446×10^{-6} *34*; α(L)=1.883×10^{-7} *26*; α(M)=1.589×10^{-8} *22* α(IPF)=0.001320 *19* I_γ: from (p,γ) E=res. Other: 100 *4* from ^{32}Cl ε decay, 100 *5* from (p,p′γ).
		7113.8[#]	2.3[#] *6*	0.0	0$^+$	[E2]			B(E2)(W.u.)=0.057 *+22−17* I_γ: other: 14 *4* from (p,p′γ) is discrepant.
7190.7	1$^+$	2494.5[#] *9*	4.1[#] *26*	4695.65	1$^+$	[M1,E2]		0.00051 *5*	α(K)=6.68×10^{-6} *25*; α(L)=5.14×10^{-7} *19*; α(M)=4.34×10^{-8} *16* α(IPF)=0.00050 *5* B(M1)(W.u.)=0.0042 *+35−22* if M1, B(E2)(W.u.)=2.9 *+24−15* if E2.
		3412.4[#] *7*	52.6[#] *45*	3778.52	0$^+$	[M1]		0.000826 *12*	α(K)=4.02×10^{-6} *6*; α(L)=3.10×10^{-7} *4*; α(M)=2.61×10^{-8} *4* α(IPF)=0.000822 *12* B(M1)(W.u.)=0.021 *+8−5*
		4959.2[#] *8*	100[#] *7*	2230.68	2$^+$	[M1,E2]		0.00140 *8*	α(K)=2.42×10^{-6} *5*; α(L)=1.861×10^{-7} *35*; α(M)=1.571×10^{-8} *29* α(IPF)=0.00140 *8* I_γ: other: 100 *20* from (p,γ) E=res. B(M1)(W.u.)=0.0130 *+50−29* if M1, B(E2)(W.u.)=2.3 *+9−5* if E2.
		7190.4[#] *15*	64 *8*	0.0	0$^+$	[M1]			B(M1)(W.u.)=0.0027 *+11−6* I_γ: weighted average of 63.1 *82* from ^{32}Cl ε decay and 70 *20* from (p,γ) E=res.
7350.0	3$^{(+)}$	2654.2	100	4695.65	1$^+$	Q			
7434	1$^-$	3152	33 *17*	4282.02	2$^+$	[E1]		1.32×10^{-3} *2*	α(K)=3.31×10^{-6} *5*; α(L)=2.55×10^{-7} *4*; α(M)=2.149×10^{-8} *30* α(IPF)=0.001318 *18* B(E1)(W.u.)=0.00055 *+27−25*
		5203	33 *17*	2230.68	2$^+$	[E1]		2.08×10^{-3} *3*	α(K)=1.808×10^{-6} *25*; α(L)=1.391×10^{-7} *19*; α(M)=1.174×10^{-8} *16* α(IPF)=0.002080 *29* B(E1)(W.u.)=1.2×10^{-4} *+6−5*
		7433	100 *25*	0.0	0$^+$	[E1]			B(E1)(W.u.)=1.28×10^{-4} *+29−27*
7484.1	2$^+$	5252.8 *6*	28 *9*	2230.68	2$^+$	[M1,E2]		0.00148 *8*	α(K)=2.24×10^{-6} *4*; α(L)=1.722×10^{-7} *31*; α(M)=1.453×10^{-8} *26* α(IPF)=0.00148 *8* E_γ,I_γ: from (γ,γ′).

$^{32}_{16}S_{16}$-35

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									B(M1)(W.u.)=0.0056 *+18−17* if M1, B(E2)(W.u.)=0.87 *+28−27* if E2.
7484.1	2+	7483.3 *5*	100 *9*	0.0	0+	E2			B(E2)(W.u.)=0.53 *+12−8* E_γ: weighted average of 7483.7 *15* from ^{32}Cl ε decay and 7483.2 *5* from (γ,γ′). I_γ: from ^{32}Cl ε decay. Other: 100 *24* from (γ,γ′).
7535.5	0+	2839.7[#] *5*	100[#] *6*	4695.65	1+	[M1]		0.000603 *8*	α(K)=5.28×10^{-6} *7*; α(L)=4.07×10^{-7} *6*; α(M)=3.43×10^{-8} *5* α(IPF)=0.000597 *8* B(M1)(W.u.)=0.26 *+13−7* E_γ: other: 2850 *40* from (^{31}P,nγ). I_γ: other: 100 *15* from (^{31}P,nγ).
		5304.4	13 *6*	2230.68	2+				E_γ,I_γ: 5200 *100* from (^{31}P,nγ). Other: Iγ<14 in (p,γ) E=res, <17 in ^{31}Cl ε decay.
7568.7	5+	2156.2	43 *14*	5412.4	3+	[E2]		0.000400 *6*	α(K)=8.88×10^{-6} *12*; α(L)=6.84×10^{-7} *10*; α(M)=5.77×10^{-8} *8* α(IPF)=0.000391 *5* B(E2)(W.u.)=5.8 *+22−17* I_γ: from (α,nγ).
		3108.4 *12*	100 *14*	4460.2	4+	M1+E2	+10 *+16−4*	0.000835 *12*	α(K)=4.84×10^{-6} *7*; α(L)=3.73×10^{-7} *5*; α(M)=3.14×10^{-8} *4* α(IPF)=0.000830 *12* B(M1)(W.u.)=5×10^{-5} *+10−4*; B(E2)(W.u.)=2.2 *+7−4* E_γ,I_γ: from (α,nγ). Mult.,δ: D+Q from nγ(θ) in (α,nγ); M2 ruled out by RUL.
7637.0	0+	3354.8	100	4282.02	2+				
7701.6	3−	5470.4	100	2230.68	2+	(E1+M2)	−0.05 *3*	2.16×10^{-3} *3*	α(K)=1.709×10^{-6} *24*; α(L)=1.315×10^{-7} *19*; α(M)=1.110×10^{-8} *16* α(IPF)=0.002156 *30* B(E1)(W.u.)=6.1×10^{-5} *+26−14*; B(M2)(W.u.)=0.023 *+42−19* Mult.,δ: δ(Q/D)=−0.05 *3* or −2.5 *7* (1997Br07) in (p,γ) E=res; Δπ=yes from level scheme; the larger value δ=−2.5 *7* is ruled out by RUL.
7882.9	4(+)	2334.2	15 *7*	5548.60	2+				
		2876.8	19 *7*	5006.0	3−				
		5651.7	100 *7*	2230.68	2+				
7923.5	0+	5692.3[#] *11*	100	2230.68	2+				E_γ: other: 5690.2 from (p,γ) E=res.
7950.1	4−	2537.6	67 *17*	5412.4	3+	[E1]		0.000991 *14*	α(K)=4.39×10^{-6} *6*; α(L)=3.38×10^{-7} *5*; α(M)=2.85×10^{-8} *4*

$^{32}_{16}S_{16}$-36

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									α(IPF)=0.000987 *14* B(E1)(W.u.)=1.70×10^{-4} *+49−39*
7950.1	4$^-$	2944.0	100 *12*	5006.0	3$^-$	E2+M1	−9.0 *15*	0.000764 *11*	α(K)=5.27×10^{-6} *7*; α(L)=4.06×10^{-7} *6*; α(M)=3.43×10^{-8} *5* α(IPF)=0.000759 *11* B(M1)(W.u.)=6.5×10^{-5} *+37−20*; B(E2)(W.u.)=2.6 *+7−5*
7974.9	3$^-$	2968.8	38 *10*	5006.0	3$^-$				
		5743.7	100 *10*	2230.68	2$^+$				1997Br07 in (p,γ) E=res claim that there is 21% of intensity unaccounted for from this level.
8125.29	1$^+$	5894.21 *28*	15.7 *5*	2230.68	2$^+$	[M1,E2]		0.00164 *8*	α(K)=1.921×10^{-6} *33*; α(L)=1.478×10^{-7} *25*; α(M)=1.247×10^{-8} *21* α(IPF)=0.00164 *8* E_γ: weighted average of 5894.32 *28* from (p,γ) E=res and 5894.04 *34* from (γ,γ′). I_γ: from (γ,γ′). Other: 18 *6* from (p,γ) E=res. B(M1)(W.u.)=0.111 *+21−16* if M1, B(E2)(W.u.)=13.6 *+26−19* if E2.
		8124.25 *24*	100.0 *5*	0.0	0$^+$	[M1]			B(M1)(W.u.)=0.27 *+5−4* E_γ: weighted average of 8124.12 *24* from (p,γ) E=res and 8124.37 *24* from (γ,γ′). Other: 8125.4 *16* from ^{32}Cl ε decay. I_γ: from (γ,γ′). Others: 100 *13* from ^{32}Cl ε decay and 100 *6* from (p,γ) E=res.
8155	(1,2)	5930 *50*	26 *5*	2230.68	2$^+$				E_γ,I_γ: from (d,nγ).
		8150 *40*	100 *19*	0.0	0$^+$				E_γ,I_γ: from (d,nγ).
8191.1	4$^{(+)}$	2642.4	100 *20*	5548.60	2$^+$	Q			
		2778.6	80 *17*	5412.4	3$^+$	D+Q			
		3730.7	93 *20*	4460.2	4$^+$	D+Q			
		3908.8	60 *10*	4282.02	2$^+$				
8270.3	5$^-$	3264.1	100	5006.0	3$^-$	E2		0.000900 *13*	α(K)=4.49×10^{-6} *6*; α(L)=3.46×10^{-7} *5*; α(M)=2.92×10^{-8} *4* α(IPF)=0.000895 *13* B(E2)(W.u.)>6.0 E_γ: γ seen in Si(α,nγ). Mult.,δ: δ(Q/D)=+1.5 *+14−70* for J=3, Q for J=5 from nγ(θ) in (α,nγ) (1997Br07); M2 ruled out by RUL. This makes Mult=M1+E2 for J^π=3$^-$, or E2 for J^π=5$^-$; a 2304γ from 5$^+$ proton resonance rules out J^π=3$^-$ since Mult=M2 for 2304γ is ruled out by RUL.
8296.1	3$^-$	4013.8	50 *17*	4282.02	2$^+$				
		6064.8	100 *17*	2230.68	2$^+$				1997Br07 in (p,γ) E=res claim that there is 19% of intensity unaccounted for from this level.
8346.5	4$^+$	3886.1 *15*	100	4460.2	4$^+$	M1+E2	+1.5 *4*	1.09×10^{-3} *3*	α(K)=3.42×10^{-6} *5*; α(L)=2.63×10^{-7} *4*; α(M)=2.222×10^{-8} *33*

$^{32}_{16}S_{16}$-37

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	Comments
							α(IPF)=0.001087 *25* B(M1)(W.u.)>0.0029; B(E2)(W.u.)>2.1 E_γ: from (α,nγ). Mult.,δ: δ(Q/D)=+1.5 *4* for J=4, Q for J=6 from $\gamma(\theta)$ in (p,γ) E=res (1997Br07); M2 ruled out by RUL. This makes M1+E2 for $J^\pi=4^+$ or E2 for $J^\pi=6^+$, while $J^\pi=6^+$ is ruled out by 1632γ, D+Q from a spin=3 resonance.
8407.9	2^+	3712.0	20 *4*	4695.65	1^+		
		4125.6	18 *4*	4282.02	2^+		
		4629.0	100 *10*	3778.52	0^+		
		8406.7 *15*	>54	0.0	0^+		E_γ,I_γ: this γ is reported as the only branch with certain branching in ^{32}Cl ε decay (2018Ab06), but it not reported in (p,γ) E=res by 1997Br07, which however claim that there is a 30% of intensity unaccounted for from this level in their measurement. I(8407γ)>54 is deduced from intensities reported in 2018Ab06.
8499.4	1^-	6268.0 *5*	65 *7*	2230.68	2^+	[E1]	B(E1)(W.u.)=8.3×10^{-4} *+20−14* E_γ: from (γ,γ'). Other: 6.3E3 *1* from (^{31}P,nγ). I_γ: unweighted average of 67 *7* from (α,γ) E=res and 49 *20* from (γ,γ'). Other: 36 *9* for a broad peak at E=6300 *100* (^{31}P,nγ).
		8498.4 *8*	100 *7*	0.0	0^+	[E1]	B(E1)(W.u.)=5.1×10^{-4} *+12−8* E_γ: from (γ,γ'). Other: 8470 *50* from (^{31}P,nγ). I_γ: from (α,γ) E=res. Others: 100 *18* from (^{31}P,nγ) and 100 *27* from (γ,γ').
8504	(0^+)	6273	100	2230.68	2^+		
8690	2^+	4911	21[@] *7*	3778.52	0^+		
		6459	100[@] *9*	2230.68	2^+		
		8689	57[@] *7*	0.0	0^+		
8729.3	3^+	1876.8	56 *11*	6852.4	4^+		
		2107.7	89 *17*	6621.5	4^-		
		3316.7	100 *17*	5412.4	3^+		1997Br07 in (p,γ) E=res claim that there is 54% of intensity unaccounted for from this level.
8745.6	3	1893.1	30 *13*	6852.4	4^+		
		2124.0	85 *13*	6621.5	4^-		
		2335	100 *13*	6411	4^+		
		3196.8	20 *10*	5548.60	2^+		
		3333.0	18 *8*	5412.4	3^+		
8861.1	2^+	5082.2	27[@] *8*	3778.52	0^+		
		6629.7	65[@] *8*	2230.68	2^+		
		8859.8[#] *16*	100[@] *10*	0.0	0^+		I_γ: other: 100 *21* from ^{32}Cl ε decay.
9023	3^-	4017	31.2[@] *33*	5006.0	3^-		
		4741	32.8[@] *33*	4282.02	2^+		
		6792	100.0[@] *33*	2230.68	2^+		

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	α[†]	Comments
9023.8	4⁻,6⁻	2262.1	100 *9*	6761.6	5⁻	M1+E2	0.00041 *4*	α(K)=7.84×10⁻⁶ *34*; α(L)=6.04×10⁻⁷ *27*; α(M)=5.10×10⁻⁸ *22* α(IPF)=0.00040 *4* I_γ: from (α,nγ). Mult.,δ: δ(Q/D)=−4.3 *+16−97* for J=6, >4 for J=4 (1997Br07) from nγ(θ) in (α,nγ); M2 ruled out by RUL. B(M1)(W.u.)=0.0048 *+16−11* if M1, B(E2)(W.u.)=4.0 *+13−9* if E2.
		2402.2	43 *9*	6621.5	4⁻			I_γ: from (α,nγ). Mult.,δ: δ(Q/D)=+1.5 *+10−6* for J=4, Q for J=6 (1997Br07) from nγ(θ) in (α,nγ); M2 ruled out by RUL. This makes M1+E2 for J^π=4⁻, or E2 for J^π=6⁻.
9058	(1,2)⁻	6827	100	2230.68	2⁺			
9065	4⁺	3652	100[@] *7*	5412.4	3⁺			
		4604	52[@] *5*	4460.2	4⁺			
		4783	20.7[@] *17*	4282.02	2⁺			
9170	(3⁺)	4709	100	4460.2	4⁺			seen only in (α,nγ).
9207.34	1⁺	2016.6	8.1 *20*	7190.7	1⁺	[M1,E2]	0.000298 *35*	α(K)=9.5×10⁻⁶ *5*; α(L)=7.3×10⁻⁷ *4*; α(M)=6.19×10⁻⁸ *33* α(IPF)=0.000288 *35* B(M1)(W.u.)=0.018 *+10−6* if M1, B(E2)(W.u.)=19 *+11−6* if E2.
		2984.5	26.4 *23*	6222.7	2⁻	[E1]	1.24×10⁻³ *2*	α(K)=3.55×10⁻⁶ *5*; α(L)=2.73×10⁻⁷ *4*; α(M)=2.304×10⁻⁸ *32* α(IPF)=0.001233 *17* B(E1)(W.u.)=0.00055 *+29−15*
		3410.1	18.0 *35*	5797.0	1⁻	[E1]	1.44×10⁻³ *2*	α(K)=3.00×10⁻⁶ *4*; α(L)=2.307×10⁻⁷ *32*; α(M)=1.946×10⁻⁸ *27* α(IPF)=0.001435 *20* B(E1)(W.u.)=0.00025 *+13−8*
		3658.52	20.6 *32*	5548.60	2⁺	[M1,E2]	0.00099 *7*	α(K)=3.71×10⁻⁶ *9*; α(L)=2.86×10⁻⁷ *7*; α(M)=2.41×10⁻⁸ *6* α(IPF)=0.00098 *7* B(M1)(W.u.)=0.0076 *+39−22* if M1, B(E2)(W.u.)=2.4 *+13−7* if E2.
		4924.91	6.1 *18*	4282.02	2⁺	[M1,E2]	0.00139 *8*	α(K)=2.44×10⁻⁶ *5*; α(L)=1.879×10⁻⁷ *35*; α(M)=1.585×10⁻⁸ *30* α(IPF)=0.00139 *8* B(M1)(W.u.)=0.0009 *+6−3* if M1, B(E2)(W.u.)=0.16 *+10−6* if E2.
		5428.33	11.9 *18*	3778.52	0⁺	[M1]	1.45×10⁻³ *2*	α(K)=2.118×10⁻⁶ *30*; α(L)=1.630×10⁻⁷ *23*; α(M)=1.375×10⁻⁸ *19* α(IPF)=0.001447 *20* B(M1)(W.u.)=0.0013 *+7−4*
		6974.8 *5*	99 *6*	2230.68	2⁺	[M1,E2]		E_γ: weighted average of 6973.5 *13* from ^{32}Cl ε decay and 6975.0 *5* from (γ,γ′). B(M1)(W.u.)=0.0053 *+26−14* if M1, B(E2)(W.u.)=0.46 *+23−12* if E2.
		9206.8 *7*	100 *6*	0.0	0⁺	(M1)[&]		B(M1)(W.u.)=0.0023 *+12−6*

$^{32}_{16}S_{16}$-39

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									E_γ: weighted average of 9207.3 *19* from ^{32}Cl ε decay, 9206.1 *7* from (p,γ) E=res, and 9207.7 *9* from (γ,γ′).
9235.2	(2$^+$,3,4,5$^+$)	3822.6	100 *10*	5412.4	3$^+$				I_γ: from (α,nγ).
		4774.6	100 *10*	4460.2	4$^+$				I_γ: from (α,nγ).
9236	1$^-$	4540	15.0[@] *9*	4695.65	1$^+$				I_γ: other: 47 *22* from (p,γ) E=res.
		5457	50.3[@] *19*	3778.52	0$^+$				I_γ: other: 130 *34* from (p,γ) E=res.
		7005	100.0[@] *21*	2230.68	2$^+$				I_γ: other: 100 *25* from (p,γ) E=res.
		9235	5.11[@] *34*	0.0	0$^+$				
9254	(2)$^+$	2588	28 *5*	6665.76	2$^+$				
		3031	18.8 *34*	6222.7	2$^-$				
		3705	13 *4*	5548.60	2$^+$				
		3841	16 *4*	5412.4	3$^+$				
		4248	44 *7*	5006.0	3$^-$				
		4558	77 *7*	4695.65	1$^+$				
		4972	18 *4*	4282.02	2$^+$				
		7023	100 *9*	2230.68	2$^+$				
9289	1$^+$	1754	14.0 *13*	7535.5	0$^+$				
		2174	39.1 *23*	7114.6	2$^+$				
		2288	2.5 *5*	7001.13	1$^+$				
		3066	6.3 *8*	6222.7	2$^-$				
		3492	2.8 *5*	5797.0	1$^-$				
		4593	39.1 *23*	4695.65	1$^+$				
		7058	46.9 *23*	2230.68	2$^+$	(M1(+E2))[&]	0.10 *+4−10*		
		9288	100 *4*	0.0	0$^+$	(M1)[&]			
9388	2$^-$	1263	2.08 *16*	8125.29	1$^+$	[E1]		0.0001130 *16*	α(K)=1.264×10^{-5} *18*; α(L)=9.74×10^{-7} *14*; α(M)=8.22×10^{-8} *12* α(IPF)=9.93×10^{-5} *14*
		2766	2.1 *5*	6621.5	4$^-$	[E2]		0.000687 *10*	α(K)=5.83×10^{-6} *8*; α(L)=4.49×10^{-7} *6*; α(M)=3.79×10^{-8} *5* α(IPF)=0.000680 *10*
		3165	25.4 *11*	6222.7	2$^-$	[M1,E2]		0.00080 *6*	α(K)=4.60×10^{-6} *13*; α(L)=3.54×10^{-7} *10*; α(M)=2.99×10^{-8} *8* α(IPF)=0.00079 *6*
		3591	3.0 *5*	5797.0	1$^-$	[M1,E2]		0.00096 *7*	α(K)=3.81×10^{-6} *9*; α(L)=2.93×10^{-7} *7*; α(M)=2.48×10^{-8} *6* α(IPF)=0.00096 *7*
		3839	2.7 *5*	5548.60	2$^+$	[E1]		1.62×10^{-3} *2*	α(K)=2.59×10^{-6} *4*; α(L)=1.994×10^{-7} *28*;

$^{32}_{16}S_{16}$-40

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	α[†]	Comments
								α(M)=1.682×10^{-8} *24* α(IPF)=0.001616 *23*
9388	2$^-$	3975	1.44 *16*	5412.4	3$^+$	[E1]	1.67×10^{-3} *2*	α(K)=2.484×10^{-6} *35*; α(L)=1.912×10^{-7} *27*; α(M)=1.613×10^{-8} *23* α(IPF)=0.001670 *23*
		4382	12.5 *6*	5006.0	3$^-$	[M1,E2]	0.00123 *8*	α(K)=2.87×10^{-6} *6*; α(L)=2.21×10^{-7} *4*; α(M)=1.86×10^{-8} *4* α(IPF)=0.00123 *8*
		4692	3.20 *32*	4695.65	1$^+$	[E1]	1.92×10^{-3} *3*	α(K)=2.040×10^{-6} *29*; α(L)=1.569×10^{-7} *22*; α(M)=1.324×10^{-8} *19* α(IPF)=0.001922 *27*
		5106	3.04 *32*	4282.02	2$^+$	[E1]	2.05×10^{-3} *3*	α(K)=1.848×10^{-6} *26*; α(L)=1.422×10^{-7} *20*; α(M)=1.200×10^{-8} *17* α(IPF)=0.002050 *29*
		7157	100 *4*	2230.68	2$^+$	[E1]		
		9387	3.99 *16*	0.0	0$^+$	[M2]		
9463.8	5$^-$,7$^-$	2702.1 *15*	100	6761.6	5$^-$			E_γ: from (α,nγ). Mult.,δ: δ(Q/D)=+0.82 *+24−19* for J=5, Q for J=7 (1997Br07) from nγ(θ) (α,nγ); M2 ruled out by RUL. This makes M1+E2 for J^π=5$^-$, or E2 for J^π=7$^-$.
9466.0	2$^+$	2351.3	13 *4*	7114.6	2$^+$			
		3668.8	11.8[@] *30*	5797.0	1$^-$			E_γ: not seen in (p,γ) E=res.
		3917.1	11.8[@] *30*	5548.60	2$^+$			E_γ: not seen in (p,γ) E=res.
		4459.7	11.8[@] *30*	5006.0	3$^-$			E_γ: not seen in (p,γ) E=res.
		4770.0	55 *6*	4695.65	1$^+$			I_γ: weighted average of 59 *6* from (α,γ) E=res and 50 *7* from (p,γ) E=res.
		5005.4	11.8[@] *30*	4460.2	4$^+$			E_γ: not seen in (p,γ) E=res.
		5686.9	13.0 *30*	3778.52	0$^+$			I_γ: weighted average of 14.7 *30* from (α,γ) E=res and 11.2 *31* from (p,γ) E=res.
		7234.4	71 *8*	2230.68	2$^+$			I_γ: weighted average of 77 *6* from (α,γ) E=res and 62 *7* from (p,γ) E=res.
		9464.5	100 *6*	0.0	0$^+$			I_γ: from (α,γ) E=res. Other: 100 *10* from (p,γ) E=res.
9485.8	1$^-$	2371.1	2.9 *4*	7114.6	2$^+$	[E1]		B(E1)(W.u.)≈0.0011
		3688.6	4.2 *10*	5797.0	1$^-$	[M1,E2]		B(M1)(W.u.)≈0.013 if M1, B(E2)(W.u.)≈4.2 if E2.
		4479.5	2.7 *10*	5006.0	3$^-$	[E2]		B(E2)(W.u.)≈1.0 I_γ: unweighted average of 1.76 *12* from (α,γ) E=res and 3.7 *8* from (p,γ) E=res.
		5203.3	11.1 *17*	4282.02	2$^+$	[E1]		B(E1)(W.u.)≈3.9×10^{-4} I_γ: unweighted average of 12.8 *7* from (α,γ) E=res and 9.4 *12* from (p,γ) E=res.
		9484.3	100.0 *8*	0.0	0$^+$	[E1]		B(E1)(W.u.)≈5.7×10^{-4} I_γ: from (α,γ) E=res. Other: 100 *8* from (p,γ) E=res.
9637.0	6$^-$	3015.3 *15*	100	6621.5	4$^-$	E2	0.000797 *11*	α(K)=5.08×10^{-6} *7*; α(L)=3.91×10^{-7} *5*; α(M)=3.30×10^{-8} *5*

$^{32}_{16}S_{16}$-41

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	Comments
							α(IPF)=0.000791 *11* B(E2)(W.u.)=6 *+6−3* E_γ: from (α,nγ). Mult.,δ: δ(Q/D)=+1.1 *3* for J=4, Q for J=6 (1997Br07) from ^{29}Si(α,nγ); M2 ruled out by RUL. This makes M1+E2 for $J^\pi=4^-$, or E2 for $J^\pi=6^-$, with the latter J^π being adopted.
9650.3	2^+	4101.4	1.0 *5*	5548.60	2^+		
		4237.6	2.9 *7*	5412.4	3^+		
		4643.9	1.2 *7*	5006.0	3^-		
		4954.2[#] *11*	62.7 *24*	4695.65	1^+		E_γ: this is the strongest branch seen in ^{32}Cl ε decay.
		5871.2	1.0 *5*	3778.52	0^+		
		7418.7	100 *5*	2230.68	2^+		E_γ: this strongest branch seen in (p,γ) E=res is not seen in ^{32}Cl ε decay, because this high-energy γ rays is near the detection sensitivity threshold (2012Me03,2018Ab06).
		9648.7	0.68 *34*	0.0	0^+		
9659	1^+	2175	0.37 *12*	7484.1	2^+	[M1,E2]	B(M1)(W.u.)=0.027 *+23−15* if M1, B(E2)(W.u.)=24 *+20−14* if E2.
		2468	2.6 *11*	7190.7	1^+	[M1]	B(M1)(W.u.)=0.13 *+12−8*
		4110	2.7 *4*	5548.60	2^+	[M1,E2]	B(M1)(W.u.)=0.029 *+22−14* if M1, B(E2)(W.u.)=7 *+6−4* if E2.
		4963	2.8 *12*	4695.65	1^+	[M1,E2]	B(M1)(W.u.)=0.017 *+15−11* if M1, B(E2)(W.u.)=2.9 *+27−18* if E2.
		5880	2.2 *4*	3778.52	0^+	[M1]	B(M1)(W.u.)=0.008 *+6−4*
		7427	12.4 *12*	2230.68	2^+	[M1,E2]	B(M1)(W.u.)=0.022 *+17−11* if M1, B(E2)(W.u.)=1.7 *+13−9* if E2.
		9657	100 *10*	0.0	0^+	[M1]	B(M1)(W.u.)=0.08 *+6−4*
9711.9	2^+	1586.6	6.7 *16*	8125.29	1^+		
		2597.2	7.2 *12*	7114.6	2^+		
		2710.7	7.2 *12*	7001.13	1^+		
		3914.6	8.4 *21*	5797.0	1^-		
		4705.5	4.9 *23*	5006.0	3^-		
		5015.8	61 *5*	4695.65	1^+		I_γ: other: 60 *16* from (α,γ) E=res.
		5251.2	2.8 *12*	4460.2	4^+		
		5429.4	6.5 *19*	4282.02	2^+		
		5932.8	15 *5*	3778.52	0^+		
		7480.3	100 *11*	2230.68	2^+		I_γ: from (α,γ) E=res. Other: 100 *16* from (p,γ) E=res.
		9710.3	15.5 *16*	0.0	0^+		I_γ: weighted average of 16 *5* from (α,γ) E=res and 15.4 *16* from (p,γ) E=res.
9724	$(3^-,4^-)$	2022	2.4 *12*	7701.6	3^-		
		2962	12 *5*	6761.6	5^-		
		3102	100 *7*	6621.5	4^-		
		3501	31.7 *34*	6222.7	2^-		
		4718	95 *7*	5006.0	3^-		
		7492	2.0 *5*	2230.68	2^+		
9731	2^-	1606	19.1 *27*	8125.29	1^+		
		1781	5.5 *14*	7950.1	4^-		
		2616	4.6 *23*	7114.6	2^+		
		3508	91 *9*	6222.7	2^-		

$^{32}_{16}S_{16}$-42

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	α[†]	Comments
9731	2⁻	3934	91 *9*	5797.0	1⁻			
		4182	4.6 *23*	5548.60	2⁺			
		4725	14 *7*	5006.0	3⁻			
		5035	24 *4*	4695.65	1⁺			
		5449	100 *9*	4282.02	2⁺			
		7499	86 *9*	2230.68	2⁺			
		9729	18.2 *23*	0.0	0⁺			
9783.0	6⁺	5322.3	100	4460.2	4⁺	E2	1.58×10^{-3} *2*	α(K)=2.223×10^{-6} *31*; α(L)=1.711×10^{-7} *24*; α(M)=1.444×10^{-8} *20* α(IPF)=0.001577 *22* B(E2)(W.u.)=0.23 *+32−12* E_γ: seen in (α,nγ). Mult.: Q from nγ(θ) in (α,nγ); M2 ruled out by RUL.
9816.8	3⁻	2702.1	17.2 *12*	7114.6	2⁺			
		3593.9	11.2 *14*	6222.7	2⁻			
		4019.5	5.4 *6*	5797.0	1⁻			
		4810.4	100 *6*	5006.0	3⁻			
		5356.1	3.4 *8*	4460.2	4⁺			
		5534.3	20 *4*	4282.02	2⁺			
		7585.2	40 *4*	2230.68	2⁺			
		9815.2	1.4 *4*	0.0	0⁺			
9848	1⁻	2733	53 *4*	7114.6	2⁺			
		3182	2.8 *8*	6665.76	2⁺			
		4051	11.2 *20*	5797.0	1⁻			
		5152	4.7 *10*	4695.65	1⁺			
		5566	3.5 *12*	4282.02	2⁺			
		7616	100 *8*	2230.68	2⁺			
		9846	19.6 *20*	0.0	0⁺			
9887.3	(2)⁺	2772.6	100 *13*	7114.6	2⁺			
		2886.0	53 *7*	7001.13	1⁺			
		3221.4	8.0 *9*	6665.76	2⁺			
		4338.4	24.4 *22*	5548.60	2⁺			
		5191.2	11.1 *22*	4695.65	1⁺			
		5426.6	0.44 *22*	4460.2	4⁺			
		5604.8	8.4 *11*	4282.02	2⁺			
		7655.6	22.2 *22*	2230.68	2⁺			
		9885.7	3.8 *5*	0.0	0⁺			
9918.1	2⁺	2382.5	2 *1*	7535.5	0⁺			
		2433.9	7.1 *7*	7484.1	2⁺			
		2803.4	22.0 *25*	7114.6	2⁺			
		3065.5	18.1 *25*	6852.4	4⁺			
		4369.2	85 *7*	5548.60	2⁺			
		4505.4	6.6 *25*	5412.4	3⁺			

$^{32}_{16}S_{16}$-43

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
9918.1	2^+	5635.6	2.9 *17*	4282.02	2^+			
		7686.4	100 *10*	2230.68	2^+			
9946.6	1^-	1821.3	10.3 *8*	8125.29	1^+	D+Q	0.10 *6*	
		2831.9	1.97 *26*	7114.6	2^+			
		2945.3	0.53 *13*	7001.13	1^+			
		5250.5	2.0 *4*	4695.65	1^+			
		5664.0	2.9 *4*	4282.02	2^+			
		6167.4	3.7 *8*	3778.52	0^+			
		7714.9	10.7 *12*	2230.68	2^+	D+Q	+0.7 *1*	
		9944.9	100 *9*	0.0	0^+	D		
9977.9	$4^{(-)}$	3356.2	51 *6*	6621.5	4^-	D+Q	−0.5 *2*	
		3755.0	53 *6*	6222.7	2^-	Q(+O)	+0.04 *5*	
		4971.5	100 *8*	5006.0	3^-	D+Q	+2.4 *2*	
9978.3	$3^{(+)}$	1631.8	2.2 *6*	8346.5	4^+	D+Q	+3.4 *4*	
		2494.1	10.8 *11*	7484.1	2^+	D(+Q)	0.00 *2*	
		2863.6	13.2 *14*	7114.6	2^+	D+Q	−0.05 *2*	
		2977.0	3.5 *6*	7001.13	1^+	Q(+O)	+0.10 *10*	
		3125.7	19.5 *19*	6852.4	4^+	D+Q	−0.05 *2*	
		4429.4	84 *8*	5548.60	2^+	D+Q	+0.06 *3*	
		4565.6	16.5 *16*	5412.4	3^+	D+Q	+0.49 *4*	
		5517.6	20.8 *22*	4460.2	4^+	D+Q	+0.34 *4*	
		7746.6	100 *8*	2230.68	2^+	D+Q	−0.22 *2*	
9982.7	2	2868.0	1.3 *5*	7114.6	2^+			
		2981.4	2.9 *8*	7001.13	1^+			
		3130.1	1.29 *32*	6852.4	4^+			
		3361.0	1.9 *7*	6621.5	4^-			
		4433.8	15.2 *15*	5548.60	2^+			
		5286.6	33.9 *32*	4695.65	1^+			
		5700.1	2.6 *8*	4282.02	2^+			
		7751.0	100 *10*	2230.68	2^+			
		9981.0	1.13 *16*	0.0	0^+			
9988	0^+	2987		7001.13	1^+			E_γ: weak transition seen in 1997Br07 in (α,γ):resonances.
10072.9	2^-	3850.0	100 *4*	6222.7	2^-	D(+Q)	+0.02 *2*	
		4660.1	8.8 *6*	5412.4	3^+	D(+Q)	0.00 *3*	
		5066.5	28.2 *14*	5006.0	3^-	D+Q	−0.06 *1*	
		5376.8	1.43 *21*	4695.65	1^+			
		5790.3	3.06 *21*	4282.02	2^+	D(+Q)	−0.05 *9*	
		7841.2	60.4 *31*	2230.68	2^+	D(+Q)	+0.02 *3*	
		10071.2	3.47 *21*	0.0	0^+	Q		
10102.3	4^+	4689.5	16.5 *14*	5412.4	3^+			
		5095.9	49.8 *14*	5006.0	3^-			

$^{32}_{16}S_{16}$-44

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
10102.3	4+	5641.6	46.7 *14*	4460.2	4+	D+Q	+7.1 *+10−8*	
		5819.7	22.9 *12*	4282.02	2+	Q		
		7870.6	100.0 *21*	2230.68	2+			
10218.8	3+	2734.6	2.7 *5*	7484.1	2+			
		3028.0	1.22 *25*	7190.7	1+			
		3104.0	100 *7*	7114.6	2+	D+Q	+0.233 *17*	
		3552.8	1.7 *5*	6665.76	2+			
		4669.8	16.6 *17*	5548.60	2+			
		4806.0	7.1 *7*	5412.4	3+			
		5212.3	12.0 *17*	5006.0	3−			
		5522.6	46 *5*	4695.65	1+	Q		
		5758.0	12.9 *12*	4460.2	4+			
		5936.2	16.6 *15*	4282.02	2+	D+Q	−0.65 *5*	
		7987.1	29.3 *25*	2230.68	2+	D+Q	−0.70 *5*	
10221.2	3−	3106.4	3.2 *24*	7114.6	2+	D+Q	+0.04 *1*	
		3555.2	1.13 *32*	6665.76	2+			
		4808.4	0.65 *32*	5412.4	3+			
		5214.7	100.0 *30*	5006.0	3−	D(+Q)	−0.02 *2*	I_γ: from (α,γ) E=res. Other: 100 *8* from (p,γ) E=res. δ: other: −0.06 *6* from (α,γ) E=res.
		5760.4	32.3 *30*	4460.2	4+	D+Q	−0.07 *2*	I_γ: weighted average of 30.9 *30* from (α,γ) E=res and 33.9 *32* from (p,γ) E=res. δ: other: −0.09 *2* from (α,γ) E=res.
		7989.5	19.4 *32*	2230.68	2+	D+Q	−0.07 *1*	I_γ: unweighted average of 16.2 *15* from (α,γ) E=res and 22.6 *16* from (p,γ) E=res. δ: other: +0.11 *5* from (α,γ) E=res.
		10219.5	0.48 *32*	0.0	0+	[E3]		
10230.1	1+	2694.5	11.5 *15*	7535.5	0+			
		3039.3	1.9 *4*	7190.7	1+			
		3115.3	6.8 *21*	7114.6	2+			
		3228.8	100 *6*	7001.13	1+	D+Q		Mult.,δ: −0.21≥δ≥−4.7 (1973Ve08) from (p,γ) E=res.
		4007.1	8.9 *19*	6222.7	2−			
		4681.1	5.3 *11*	5548.60	2+			
		4817.3	6.8 *6*	5412.4	3+			
		5533.9	9.2 *13*	4695.65	1+			
		5947.5	23.4 *21*	4282.02	2+			
		6450.9	6.0 *13*	3778.52	0+			
		7998.4	19.2 *19*	2230.68	2+			
		10228.4	16.2 *17*	0.0	0+			
10256.0	4−	2305.8	7.4 *8*	7950.1	4−	D+Q	−0.18 *2*	
		3494.2	3.4 *8*	6761.6	5−			
		3634.3	100 *7*	6621.5	4−	D(+Q)	+0.02 *4*	
		3845	0.66 *26*	6411	4+	D+Q	+0.50 *8*	
		5249.5	6.2 *7*	5006.0	3−	D+Q	−0.11 *2*	
		5795.2	12.8 *9*	4460.2	4+	D(+Q)	+0.03 *4*	

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
10256.0	4⁻	8024.2	1.18 *13*	2230.68	2⁺	Q+O	−0.02 *1*	
10286.2	3⁻	5279.7	100.0 *25*	5006.0	3⁻			I_γ: from (α,γ) E=res. Other: 100 *11* from (p,γ) E=res.
		5825.4	19.6 *25*	4460.2	4⁺			I_γ: weighted average of 19.0 *25* from (α,γ) E=res and 20.3 *27* from (p,γ) E=res.
		8054.4	11 *4*	2230.68	2⁺			I_γ: unweighted average of 7.6 *13* from (α,γ) E=res and 14.9 *14* from (p,γ) E=res.
10290.2	2⁻	2164.8	9.7 *29*	8125.29	1⁺			
		3624.2	5.1 *26*	6665.76	2⁺			
		4067.2	83 *6*	6222.7	2⁻	D+Q	−0.10 *4*	
		4492.9	6.9 *23*	5797.0	1⁻			
		5283.7	68.6 *29*	5006.0	3⁻	D+Q	−0.29 *6*	
		6007.6	8.0 *12*	4282.02	2⁺			
		8058.4	100 *12*	2230.68	2⁺	D+Q	+0.11 *4*	
		10288.4	11.4 *12*	0.0	0⁺			
10331.0	1⁻	2205.6	7.4 *15*	8125.29	1⁺			
		5634.8	17.7 *15*	4695.65	1⁺			
		8099.2	100 *9*	2230.68	2⁺			
		10329.2	22.1 *30*	0.0	0⁺			
10370.6	2⁺	2886.4	3.7 *5*	7484.1	2⁺			
		3179.7	4.0 *11*	7190.7	1⁺			
		3369.3	0.54 *19*	7001.13	1⁺			
		3704.6	53 *5*	6665.76	2⁺	D+Q	+0.72 *26*	
		4147.6	6.7 *8*	6222.7	2⁻			
		4821.6	8.8 *11*	5548.60	2⁺			
		4957.8	33.7 *35*	5412.4	3⁺	D+Q	+2.8 *5*	
		5364.1	7.2 *8*	5006.0	3⁻			
		5674.4	28.6 *27*	4695.65	1⁺	D(+Q)	−0.10 *10*	
		6088.0	100 *7*	4282.02	2⁺	D+Q	−0.08 *2*	
		8138.8	20.3 *22*	2230.68	2⁺	D+Q	−0.08 *3*	
		10368.8	0.80 *22*	0.0	0⁺			
10396.5	4⁻	2271.1	0.24 *5*	8125.29	1⁺	[E3]		
		2446.3	5.7 *6*	7950.1	4⁻	D(+Q)	−0.05 *11*	
		2694.8	0.85 *11*	7701.6	3⁻			
		2827.7	0.4 *7*	7568.7	5⁺			
		3029	0.85 *14*	7367				
		3395.2	0.37 *9*	7001.13	1⁺	[E3]		
		3543.9	1.95 *27*	6852.4	4⁺	D(+Q)	−0.03 *3*	
		3634.7	3.3 *5*	6761.6	5⁻	D+Q	−0.07 *5*	
		3774.8	100 *2*	6621.5	4⁻	D+Q	−0.05 *3*	
		3985	0.61 *25*	6411	4⁺			
		4599.2	0.37 *7*	5797.0	1⁻	[M3]		
		4983.7	0.12 *4*	5412.4	3⁺			
		5390.0	6.0 *7*	5006.0	3⁻	D+Q	+0.19 *2*	
		5935.7	1.22 *17*	4460.2	4⁺	D(+Q)	−0.02 *6*	

$^{32}_{16}S_{16}$-46

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
10396.5	4^-	6114.4	0.37 *23*	4282.02	2^+	[M2]		
		8164.7	0.24 *4*	2230.68	2^+	Q(+O)	0.00 *6*	
10399.2	0^-	2273.8	32 *4*	8125.29	1^+			
		4601.8	100 *11*	5797.0	1^-			
10434.3	$(2^+,3^-)$	5427.8	30.5[@]	5006.0	3^-			
		5973.5	39[@]	4460.2	4^+			
		8202.5	100[@]	2230.68	2^+			
10458	0^+	3457		7001.13	1^+			E_γ: weak transition seen by 1997Br07 in (α,γ) E=res.
10508.4	(1,2)	3158.2	2.2 *6*	7350.0	$3^{(+)}$			
		3317.5	9.3 *6*	7190.7	1^+			
		3393.6	100.0 *18*	7114.6	2^+			
		3842.4	3.0 *6*	6665.76	2^+			
		4711.0	4.1 *4*	5797.0	1^-			
		5095.6	14.0 *6*	5412.4	3^+			
		5501.9	2.2 *4*	5006.0	3^-			
		5812.2	1.6 *4*	4695.65	1^+			
		6225.7	13.6 *8*	4282.02	2^+			
		8276.6	41.7 *10*	2230.68	2^+			
		10506.6	10.7 *16*	0.0	0^+			
10555.8?		8324.0	100	2230.68	2^+			
		10553.9	67	0.0	0^+			
10573.2	5^+	2302.8	3.8 *4*	8270.3	5^-			
		3223.0	6.8 *6*	7350.0	$3^{(+)}$			
		3811.4	6.0 *6*	6761.6	5^-			
		3951.4	4.4 *6*	6621.5	4^-			
		4162	2.7 *7*	6411	4^+			
		5160.4	52.5 *9*	5412.4	3^+	Q		
		6112.4	100.0 *17*	4460.2	4^+			
10603.5	(2^+)	2478.1	7.7	8125.29	1^+			
		3488.7	25.6	7114.6	2^+			
		4806.1	12.8	5797.0	1^-			
		5054.5	100	5548.60	2^+			
		5190.7	25.6	5412.4	3^+			
		5597.0	20.5	5006.0	3^-			
		8371.6	15.4	2230.68	2^+			
		10601.6	49	0.0	0^+			
10635.8	$(3^-,4^+,5^-)$	2685.6	22.7 *11*	7950.1	4^-			
		2934.1	5.5 *9*	7701.6	3^-			
		3874.0	13.3 *13*	6761.6	5^-			
		4014.0	100.0 *21*	6621.5	4^-			
10695.9	(2^+)	2994.2	0.71	7701.6	3^-			

$^{32}_{16}S_{16}$-47

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]
10695.9	(2$^+$)	3160.2	0.71	7535.5	0$^+$		
		4898.5	4.3	5797.0	1$^-$		
		5146.9	2.86	5548.60	2$^+$		
		5689.4	4.3	5006.0	3$^-$		
		5999.7	2.86	4695.65	1$^+$		
		6235.1	1.43	4460.2	4$^+$		
		6413.2	14.3	4282.02	2$^+$		
		6916.6	4.3	3778.52	0$^+$		
		8464.0	7.1	2230.68	2$^+$		
		10694.0	100	0.0	0$^+$		
10700.2	1$^-$	4902.8	4.8	5797.0	1$^-$		
		6004.0	3.6	4695.65	1$^+$		
		6920.9	4.8	3778.52	0$^+$		
		8468.3	6	2230.68	2$^+$		
		10698.3	100	0.0	0$^+$		
10704.8	(5$^-$)	3003.1	16.7 *17*	7701.6	3$^-$		
		3942.9	59.7 *29*	6761.6	5$^-$		
		4083.0	100.0 *33*	6621.5	4$^-$		
		6244.0	16 *4*	4460.2	4$^+$		
10756.3	3	1691	1.2 *4*	9065	4$^+$		
		2026.9	1.8 *5*	8729.3	3$^+$		
		3054.5	3.5 *4*	7701.6	3$^-$		
		3406.1	6.2 *4*	7350.0	3$^{(+)}$		
		3641.5	2.7 *4*	7114.6	2$^+$		
		3903.6	5.5 *4*	6852.4	4$^+$		
		4134.5	2.3 *5*	6621.5	4$^-$		
		5207.3	31.8 *11*	5548.60	2$^+$	D+Q	+0.19 *4*
		5343.4	13.4 *7*	5412.4	3$^+$	D+Q	+0.48 *12*
		6295.4	100.0 *16*	4460.2	4$^+$	D+Q	−0.12 *9*
		6473.6	6.2 *4*	4282.02	2$^+$		
		8524.4	1.9 *4*	2230.68	2$^+$		
10778.3	(2$^+$)	1755	2.80 *23*	9023	3$^-$		
		2370.3	0.47 *23*	8407.9	2$^+$		
		2803.3	4.9 *5*	7974.9	3$^-$		
		3294.0	1.87 *23*	7484.1	2$^+$		
		3428.1	0.70 *23*	7350.0	3$^{(+)}$		
		3776.9	30.1 *7*	7001.13	1$^+$		
		4112.3	3.7 *5*	6665.76	2$^+$		
		4980.9	1.40 *23*	5797.0	1$^-$		
		5229.2	1.40 *23*	5548.60	2$^+$		
		5365.4	16.6 *5*	5412.4	3$^+$		

$^{32}_{16}S_{16}$-48

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
10778.3	(2^+)	6082.0	10.5 *5*	4695.65	1^+			
		6495.6	38.9 *7*	4282.02	2^+			
		8546.4	100.0 *21*	2230.68	2^+			
		10776.4	19.4 *5*	0.0	0^+			
10783.2	2^+	2859.6	2.52 *19*	7923.5	0^+			
		3146.0	1.35 *19*	7637.0	0^+			
		3668.4	0.58 *19*	7114.6	2^+			
		3781.8	3.10 *19*	7001.13	1^+			
		4117.2	3.68 *19*	6665.76	2^+			
		5234.1	23.0 *6*	5548.60	2^+			
		6086.9	20.1 *8*	4695.65	1^+			
		6500.5	7.2 *4*	4282.02	2^+			
		7003.9	3.3 *4*	3778.52	0^+			
		8551.3	28.4 *8*	2230.68	2^+			
		10781.3	100.0 *12*	0.0	0^+			
10784.0	$(0,1,2,3^+)$	3782.6	100	7001.13	1^+			
10791.4	1^-	2666.0	4.12 *22*	8125.29	1^+			
		3676.6	8.68 *22*	7114.6	2^+			
		3790.0	9.98 *22*	7001.13	1^+			
		4994.0	1.30 *22*	5797.0	1^-			
		5242.3	3.9 *4*	5548.60	2^+			
		5378.5	9.1 *4*	5412.4	3^+			
		5784.8	20.0 *7*	5006.0	3^-			
		6095.1	7.2 *7*	4695.65	1^+			
		6508.7	15.4 *9*	4282.02	2^+			
		8559.5	100.0 *11*	2230.68	2^+	D+Q		Mult.,δ: -0.3 *2* or 1.4 *12* ^{28}Si(α,γ).
		10789.5	37.3 *9*	0.0	0^+			
10806	2^+	5393	8.7[@]	5412.4	3^+			
		5799	21.7[@]	5006.0	3^-			
		6110	4.4[@]	4695.65	1^+			
		6523	19.6[@]	4282.02	2^+			
		8574	100[@]	2230.68	2^+	D+Q	-0.19 *6*	Mult.,δ: from $\gamma(\theta)$ in (α,γ):resonances.
		10804	63[@]	0.0	0^+			
10824.9	1^-	3823.5	13.4 *9*	7001.13	1^+			
		5275.8	17 *4*	5548.60	2^+			
		5412.0	15 *4*	5412.4	3^+			
		5818.3	29 *5*	5006.0	3^-			
		6542.2	79 *7*	4282.02	2^+			
		8593.0	100 *9*	2230.68	2^+			
		10822.9	58 *9*	0.0	0^+			

$^{32}_{16}S_{16}$-49

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
10827.0	1^-	3712.2	2.7	7114.6	2^+			
		5029.6	8.1	5797.0	1^-			
		5414.1	8.1	5412.4	3^+			
		5820.4	16.2	5006.0	3^-			
		6130.7	5.4	4695.65	1^+			
		6544.3	60	4282.02	2^+			
		7047.7	5.4	3778.52	0^+			
		8595.1	100	2230.68	2^+			
		10825.0	65	0.0	0^+			
10841	2^+	5428	25[@]	5412.4	3^+			
		5834	25[@]	5006.0	3^-			
		6558	75[@]	4282.02	2^+	D+Q	+0.60 *12*	Mult.,δ: from $\gamma(\theta)$ in (α,γ).
		8609	100[@]	2230.68	2^+	D+Q	+0.54 *15*	Mult.,δ: from $\gamma(\theta)$ in (α,γ).
		10839	25[@]	0.0	0^+			
10851	1^-	6568	<27.3[@]	4282.02	2^+			
		8619	<55[@]	2230.68	2^+			
		10849	>100[@]	0.0	0^+			
10915	1^-	8683	45	2230.68	2^+			
		10913	100	0.0	0^+			
10933.1	3	1221.2	7.37 *32*	9711.9	2^+			
		2243	7.69 *32*	8690	2^+			
		3448.8	7.7 *7*	7484.1	2^+			
		3582.9	30.5 *7*	7350.0	$3^{(+)}$	D(+Q)	−0.02 *11*	
		3818.3	6.1 *7*	7114.6	2^+			
		4080.4	67 *1*	6852.4	4^+	D(+Q)	−0.03 *7*	
		4522	22.8 *7*	6411	4^+			
		5384.0	15.1 *7*	5548.60	2^+			
		5520.2	13.5 *7*	5412.4	3^+			
		6472.2	23.4 *10*	4460.2	4^+			
		6650.3	100 *1*	4282.02	2^+	D(+Q)	0.00 *6*	
		8701.2	19.2 *7*	2230.68	2^+			
10941	1^-	8709	39[@]	2230.68	2^+	D+Q		δ: 0.00 *18* or 3.0 *15* from $\gamma(\theta)$ in (α,γ) E=res.
		10939	100[@]	0.0	0^+			
11009.4	4^+	2739.0	1.46 *21*	8270.3	5^-			
		3059.1	0.63 *21*	7950.1	4^-			
		3126.3	4.38 *21*	7882.9	$4^{(+)}$	D(+Q)	≤+0.62	
		3307.6	2.29 *21*	7701.6	3^-			
		3525.1	0.83 *21*	7484.1	2^+			
		3659.2	2.50 *21*	7350.0	$3^{(+)}$			

Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
11009.4	4^+	3894.6	1.04 *21*	7114.6	2^+			
		4247.5	1.04 *21*	6761.6	5^-			
		4343.3	2.92 *21*	6665.76	2^+			
		4387.6	0.63 *21*	6621.5	4^-			
		4598	16.46 *21*	6411	4^+	D(+Q)	≤+1.0	
		5596.5	3.13 *21*	5412.4	3^+			
		6002.8	37.9 *6*	5006.0	3^-	D+Q	−0.12 *6*	
		6548.5	100.0 *11*	4460.2	4^+	D(+Q)	≤+0.73	
		6726.6	23.5 *4*	4282.02	2^+			
		8777.4	8.96 *21*	2230.68	2^+			
11052	$(3^-,4^+,5^-)$	4641	<5[@]	6411	4^+			
		6045	<5[@]	5006.0	3^-			
		6591	100[@]	4460.2	4^+	D+Q		δ: −0.20 *7* for J=3, −0.34 *8* for J=4, +0.23 *4* for J=5 from γ(θ) in (α,γ) E=res.
11078	2^+	11076	100	0.0	0^+			
11091.7	3^-	2795.5	23.1 *9*	8296.1	3^-	D+Q	−0.47 *24*	
		2900.5	3.0 *9*	8191.1	$4^{(+)}$			
		3116.6	13.3 *4*	7974.9	3^-	D(+Q)	+0.00 *+29−7*	
		3141.4	18.4 *9*	7950.1	4^-			
		3389.9	51.7 *13*	7701.6	3^-	D(+Q)	≤+1.0	
		4329.8	3.0 *17*	6761.6	5^-			
		4469.9	100.0 *17*	6621.5	4^-	D(+Q)	−0.05 *5*	
		4868.6	55.1 *17*	6222.7	2^-			
		6085.1	85.5 *26*	5006.0	3^-			
		6630.8	63.3 *26*	4460.2	4^+			
		6808.9	10.3 *17*	4282.02	2^+			
11114	$(2^+,3^-)$	4492	1.2	6621.5	4^-			
		6107	3.5	5006.0	3^-			
		8882	11.6	2230.68	2^+			
		11112	100	0.0	0^+			
11122	$(1,2^+)$	3586	7.29 *29*	7535.5	0^+			
		4121	9.14 *29*	7001.13	1^+			
		6426	6.71 *29*	4695.65	1^+			
		7343	9.57 *29*	3778.52	0^+			
		8890	14.4 *4*	2230.68	2^+			
		11120	100.0 *7*	0.0	0^+			
11131	1^+	3940	1.14	7190.7	1^+			
		6435	2.27	4695.65	1^+			
		8899	10.2	2230.68	2^+			
		11129	100	0.0	0^+			
11139.2	$(1,2^+)$	3603.5	0.47 *12*	7535.5	0^+			

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Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]
11139.2	(1,2$^+$)	4137.8	0.71 *12*	7001.13	1$^+$		
		4916.1	0.47 *12*	6222.7	2$^-$		
		6442.9	2.71 *24*	4695.65	1$^+$		
		7359.8	2.12 *24*	3778.52	0$^+$		
		8907.2	10.9 *7*	2230.68	2$^+$		
		11137.1	100.0 *8*	0.0	0$^+$		
11234.9	3	2545	2.95 *21*	8690	2$^+$		
		3043.6	6.53 *21*	8191.1	4$^{(+)}$		
		3533.1	3.16 *21*	7701.6	3$^-$		
		4824	4.2 *4*	6411	4$^+$		
		5685.8	2.7 *4*	5548.60	2$^+$		
		5821.9	7.2 *4*	5412.4	3$^+$		
		6773.9	6.5 *4*	4460.2	4$^+$		
		6952.1	77.5 *13*	4282.02	2$^+$	D(+Q)	−0.02 *4*
		9002.9	100.0 *13*	2230.68	2$^+$		
11253.3	3$^-$	2392.1	1.37 *15*	8861.1	2$^+$		
		2523.9	1.22 *15*	8729.3	3$^+$		
		2563	3.65 *15*	8690	2$^+$		
		2845.3	4.11 *15*	8407.9	2$^+$	D(+Q)	0.00 *3*
		2957.1	0.61 *15*	8296.1	3$^-$		
		3062.0	7.31 *15*	8191.1	4$^{(+)}$		
		3303.0	2.74 *15*	7950.1	4$^-$		
		3551.5	1.22 *15*	7701.6	3$^-$		
		4400.6	1.83 *15*	6852.4	4$^+$		
		4587.2	2.89 *15*	6665.76	2$^+$		
		4842	2.44 *15*	6411	4$^+$		
		5704.2	1.67 *15*	5548.60	2$^+$		
		5840.3	1.83 *15*	5412.4	3$^+$		
		6246.7	7.15 *31*	5006.0	3$^-$		
		6556.9	1.67 *15*	4695.65	1$^+$		
		6970.5	8.52 *31*	4282.02	2$^+$	D+Q	+0.09 *3*
		9021.3	100.0 *8*	2230.68	2$^+$		
11332.2	(2$^+$)	1673	29.6 *29*	9659	1$^+$		
		3206.7	47.0 *23*	8125.29	1$^+$		
		4217.3	20.9 *26*	7114.6	2$^+$		
		4330.8	6.1 *26*	7001.13	1$^+$		
		4921	26.1 *29*	6411	4$^+$		
		6325.5	19.0 *29*	5006.0	3$^-$		
		6635.8	16.1 *29*	4695.65	1$^+$		
		7049.4	57 *4*	4282.02	2$^+$		
		11330.1	100 *7*	0.0	0$^+$		

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Adopted Levels, Gammas (continued)

γ(^{32}S) (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
11463	(2,3,4)	6050	14.6	5412.4	3^+				
		7002	7.3	4460.2	4^+				
		7180	100	4282.02	2^+				
11474.0	$3^{(+)}$	2728.3	4.99 *14*	8745.6	3	D+Q		0.00062 *6*	Mult.,δ: 0.00 *5* or +1.0 *1*.
		2744.6	4.99 *14*	8729.3	3^+	(M1+E2)			α(K)=5.73×10^{-6} *19*; α(L)=4.42×10^{-7} *15*; α(M)=3.73×10^{-8} *12* α(IPF)=0.00061 *6* Mult.,δ: −0.02 *1* or +1.10 *12*; M1+E2 is favored since E1+M2 would require a large B(M2).
		4621.2	1.62 *14*	6852.4	4^+				
		4807.9	2.56 *14*	6665.76	2^+	D(+Q)	+0.03 *6*		
		4852.1	2.29 *14*	6621.5	4^-				
		5063	0.54 *14*	6411	4^+				
		5250.8	0.94 *14*	6222.7	2^-				
		5924.8	1.35 *14*	5548.60	2^+				
		6061.0	9.03 *14*	5412.4	3^+	D+Q	−0.07 *4*		
		7013.0	6.33 *14*	4460.2	4^+				
		7191.1	100.0 *6*	4282.02	2^+				
11485.2	(1,2)	3359.7	56 *9*	8125.29	1^+				
		6478.5	79 *14*	5006.0	3^-				
		7705.7	100 *12*	3778.52	0^+				
11589.1	1^-	3181.0	4.47 *26*	8407.9	2^+				
		4474.2	25.8 *8*	7114.6	2^+				
		4922.9	1.1 *5*	6665.76	2^+				
		5178[a]	0.8 *5*	6411	4^+	[E3]			Unrealistically large B(E3)(W.u.)=2.3×10^7 makes the placement of this γ questionable.
		6582.4	7.6 *8*	5006.0	3^-				
		6892.7	1.8 *5*	4695.65	1^+				
		7128.1[a]	18.2 *11*	4460.2	4^+	[E3]			Unrealistically large B(E3)(W.u.)=5.5×10^7 makes the placement of this γ questionable.
		7306.2	56.6 *11*	4282.02	2^+				
		7809.6	8.4 *8*	3778.52	0^+				
		9357.0	38.2 *13*	2230.68	2^+				
		11586.9	100.0 *19*	0.0	0^+				
11602.4	(1,2)	4066.6	12.0 *16*	7535.5	0^+				
		4411.4	31.8 *16*	7190.7	1^+				
		6053.2	37.8 *20*	5548.60	2^+				
		6595.7	45.1 *22*	5006.0	3^-				
		6906.0	100.0 *31*	4695.65	1^+				
11636.5	(2^+)	3289.8	0.80 *12*	8346.5	4^+				
		3712.8	0.57 *12*	7923.5	0^+				
		4152.1	0.46 *12*	7484.1	2^+				

$^{32}_{16}S_{16}$-53

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[‡]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
11636.5	(2^+)	4202	0.23 *12*	7434	1^-			
		4445.5	0.46 *12*	7190.7	1^+			
		4635.0	0.80 *12*	7001.13	1^+			
		4970.3	0.69 *12*	6665.76	2^+			
		5413.3	0.57 *12*	6222.7	2^-			
		5838.9	0.69 *12*	5797.0	1^-			
		6087.3	3.55 *12*	5548.60	2^+			
		6940.0	2.17 *12*	4695.65	1^+			
		7856.9	1.26 *12*	3778.52	0^+			
		9404.3	2.75 *23*	2230.68	2^+			
		11634.2	100.0 *6*	0.0	0^+			
11669.0	5^+	2939.6	0.64 *16*	8729.3	3^+			
		3322.3	6.19 *32*	8346.5	4^+			
		3477.7	15.24 *32*	8191.1	$4^{(+)}$	D(+Q)	−0.03 *3*	
		4100.0	21.43 *32*	7568.7	5^+	D(+Q)	0.00 *9*	
		4907.0	0.64 *16*	6761.6	5^-			
		5258	100.0 *6*	6411	4^+	D+Q	+0.12 *4*	
		7207.9	14.44 *32*	4460.2	4^+	D(+Q)	+0.03 *3*	
11696.1	5^+	3349.4	6.66 *17*	8346.5	4^+			
		3504.8	10.15 *17*	8191.1	$4^{(+)}$	D(+Q)	+0.02 *4*	
		4127.1	14.64 *33*	7568.7	5^+			
		4345.8	1.66 *17*	7350.0	$3^{(+)}$			
		5074.2	1.50 *33*	6621.5	4^-			
		5285	100.0 *7*	6411	4^+	D+Q	−0.40 *4*	
		7235.0	31.95 *33*	4460.2	4^+			
11750	(1^-)	7467	100[@]	4282.02	2^+	D+Q		δ: −0.21 *2* or 1.8 *1* from γ(q) in (α,γ) E=res.
		11748	2.04[@]	0.0	0^+			
11758.2	$(3^-,4,5^-)$	3461.9	14.0 *4*	8296.1	3^-			
		3807.9	14.2 *11*	7950.1	4^-			
		4996.2	100.0 *11*	6761.6	5^-			
		5136.3	49.5 *9*	6621.5	4^-			
		6751.4	4.4 *7*	5006.0	3^-			
11785	1^-	11783	100	0.0	0^+			
11803	$1^-,2^+$	4688	<5[@]	7114.6	2^+			I_γ: intensity seen in only one part of the doublet in (α,γ) E=res.
		11801	100[@]	0.0	0^+			
11939.5	3^-	3531.4	1.40 *28*	8407.9	2^+			
		3989.1	6.46 *28*	7950.1	4^-			
		5086.7	2.25 *28*	6852.4	4^+			
		5317.5	15.7 *6*	6621.5	4^-			
		5716.3	6.18 *28*	6222.7	2^-			

$^{32}_{16}S_{16}$-54

Adopted Levels, Gammas (continued)

$\gamma(^{32}S)$ (continued)

E_i(level)	J_i^π	E_γ ‡	I_γ ‡	E_f	J_f^π	Mult.‡	δ‡
11939.5	3−	6390.2	21.6 *9*	5548.60	2+	D+Q	+0.09 *7*
		6526.4	27.8 *6*	5412.4	3+	D+Q	+0.16 *12*
		7478.4	100.0 *11*	4460.2	4+	D(+Q)	−0.02 *3*
		7656.5	50.0 *6*	4282.02	2+		
		9707.2	49.4 *9*	2230.68	2+		
12021	1−	4537	9.6@	7484.1	2+		
		4906	13.7@	7114.6	2+		
		9789	13.7@	2230.68	2+		
		12019	100@	0.0	0+		
12043.3	4−	4092.9	3.2 *5*	7950.1	4−		
		5281.2	19 *1*	6761.6	5−		
		5421.3	2.7 *5*	6621.5	4−		
		7036.5	100.0 *13*	5006.0	3−	D(+Q)	0.00 *3*
		7582.1	2.5 *4*	4460.2	4+		
12047.84	0+	2840.32 *14*	11.2 *8*	9207.34	1+		
		3922.37 *15*	100.0 *11*	8125.29	1+		
		5046.1 *4*	7.5 *8*	7001.13	1+		
12048	3−	6499	<10@	5548.60	2+		
		9816	100@	2230.68	2+	D+Q	+0.03 *2*

† Additional information 113.

‡ From (p,γ) E=res, with Mult and δ from $\gamma(\theta)$ and electric or magnetic nature determined based on RUL where $T_{1/2}$ is measured, unless otherwise noted. Eγ values without uncertainties are from level-energy differences.

From ^{32}Cl ε decay.

@ From ^{28}Si(α,γ).

& Electric or magnetic character determined based on $\Delta\pi$=yes or no from level scheme.

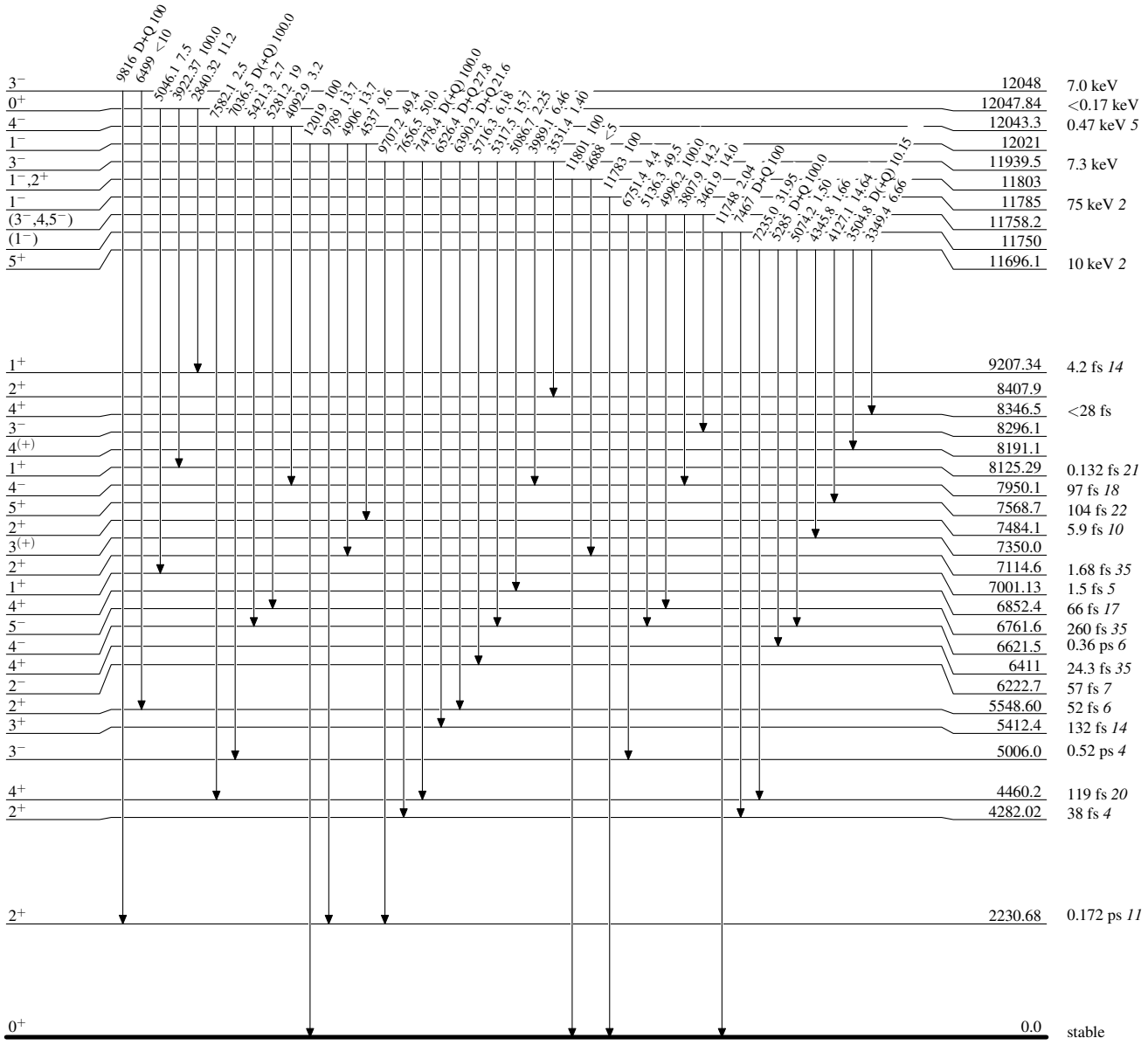
a Placement of transition in the level scheme is uncertain.

$^{32}_{16}S_{16}$-55

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{32}_{16}S_{16}$

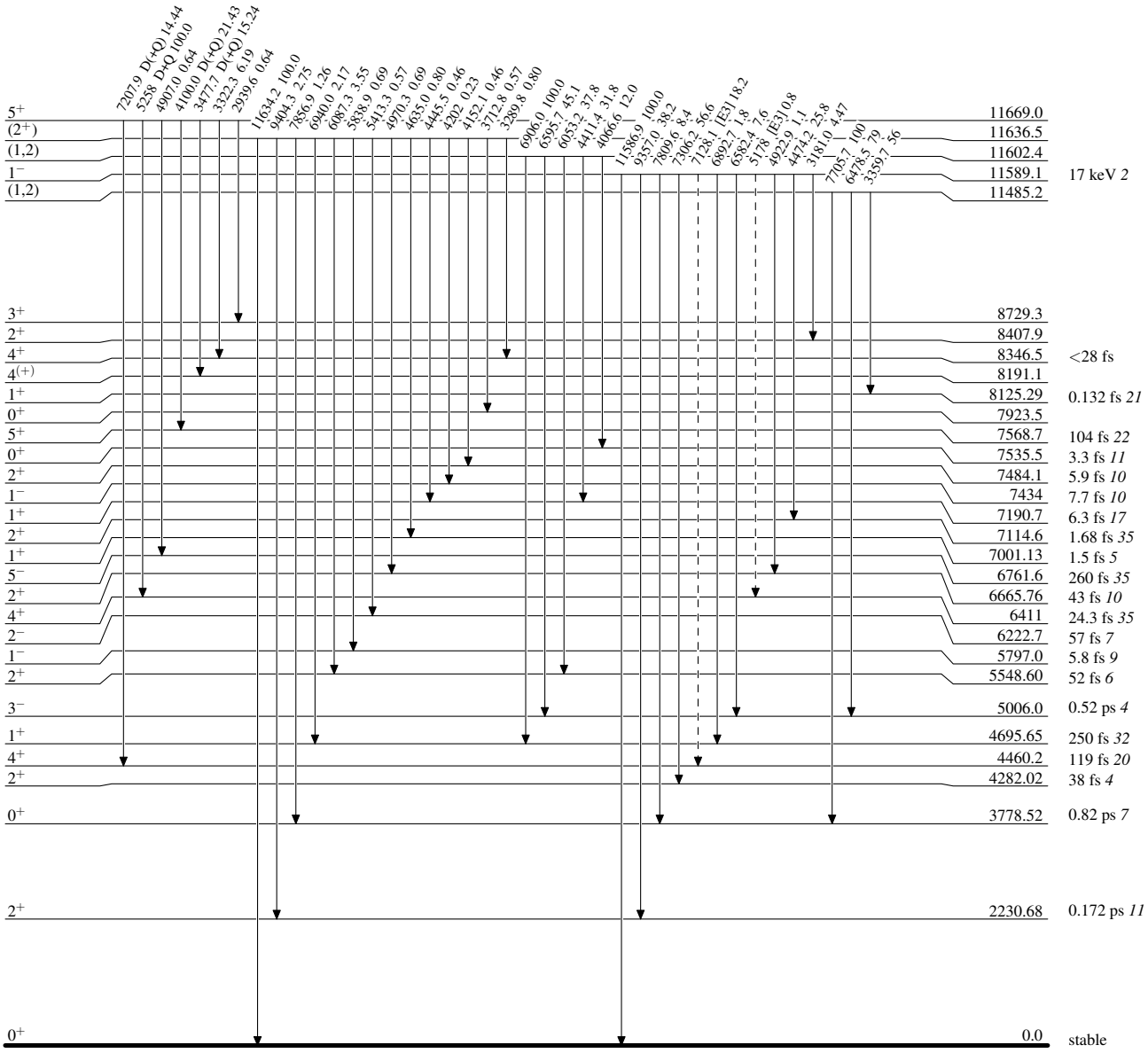
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

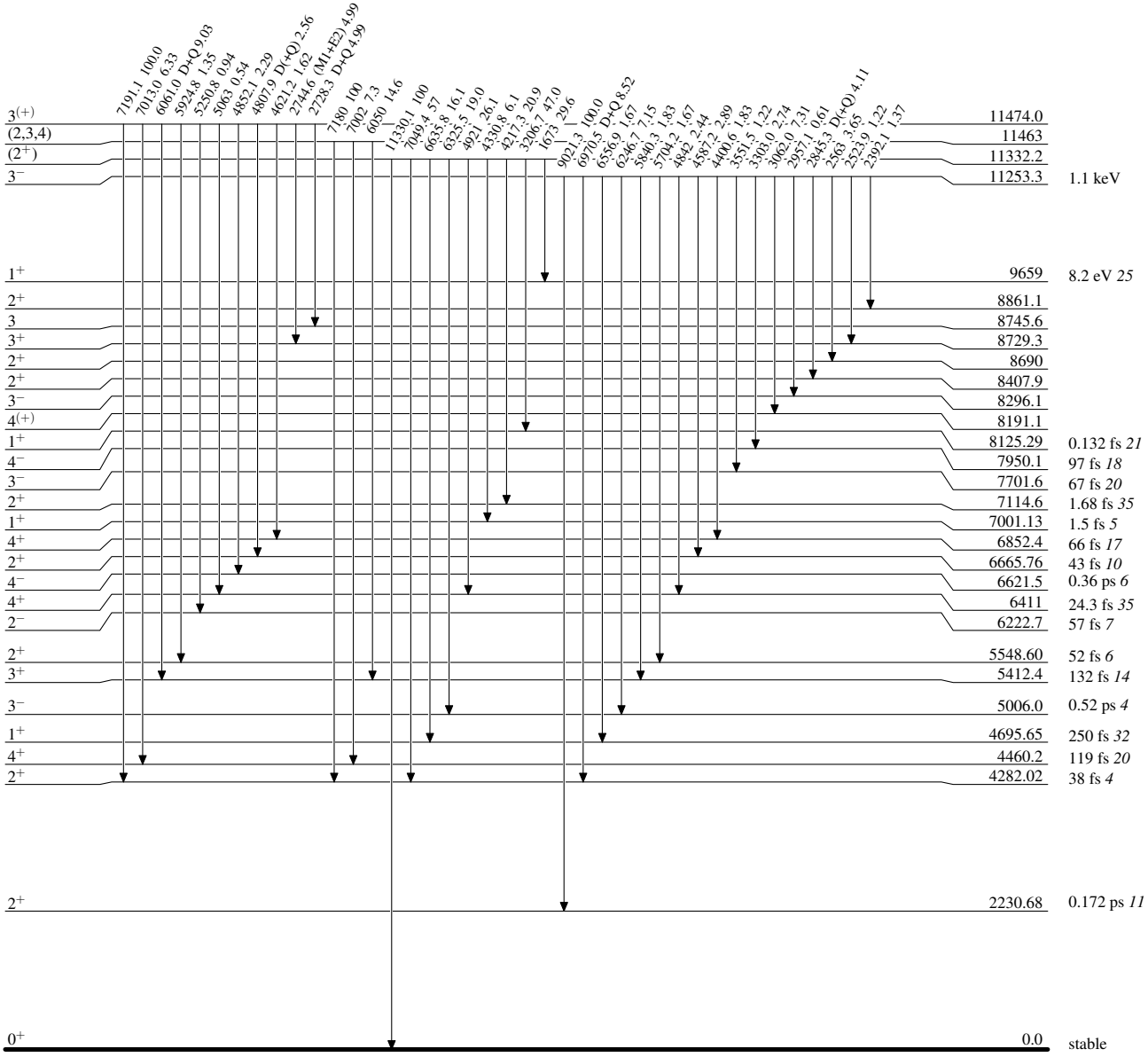


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

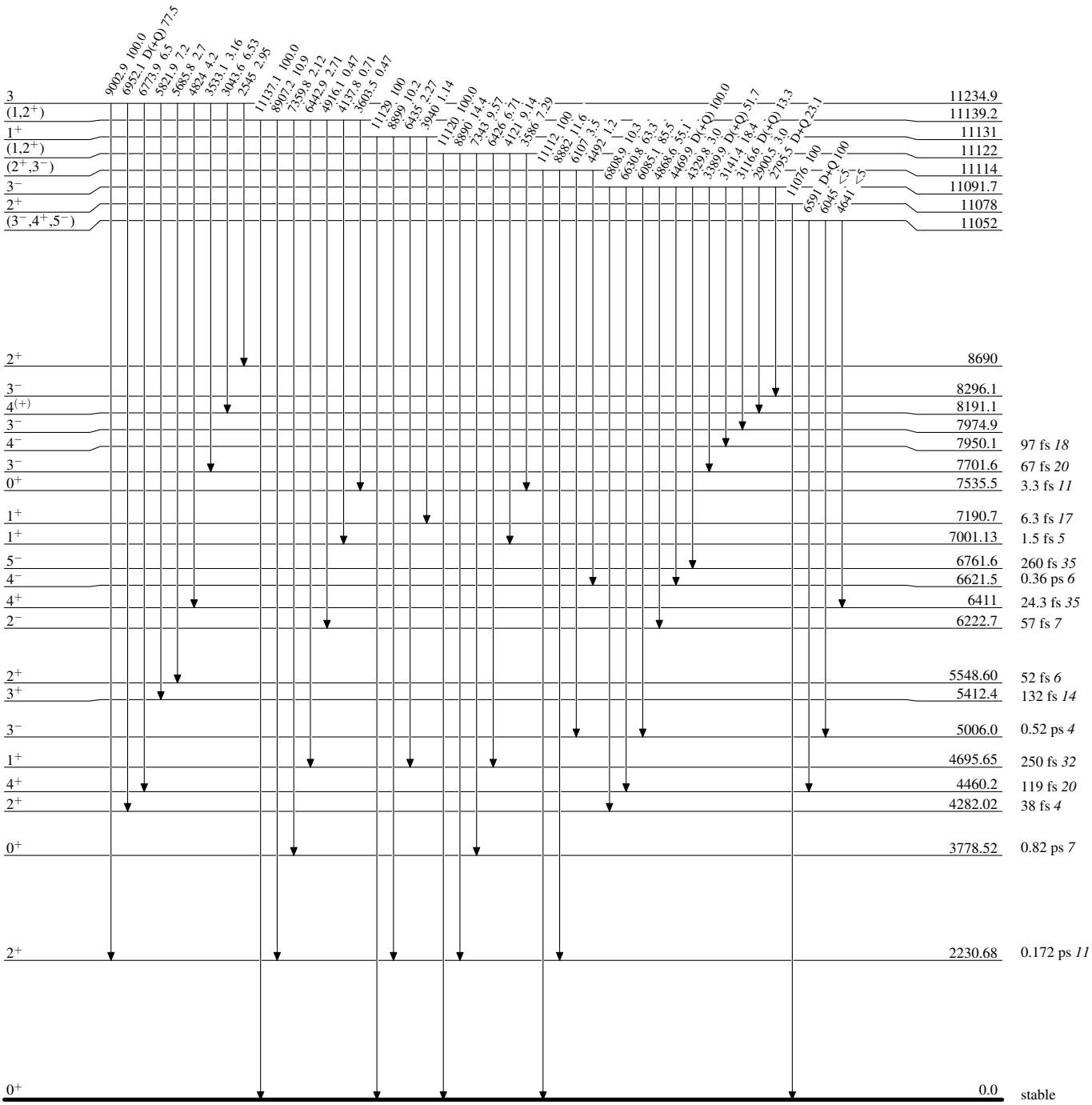


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

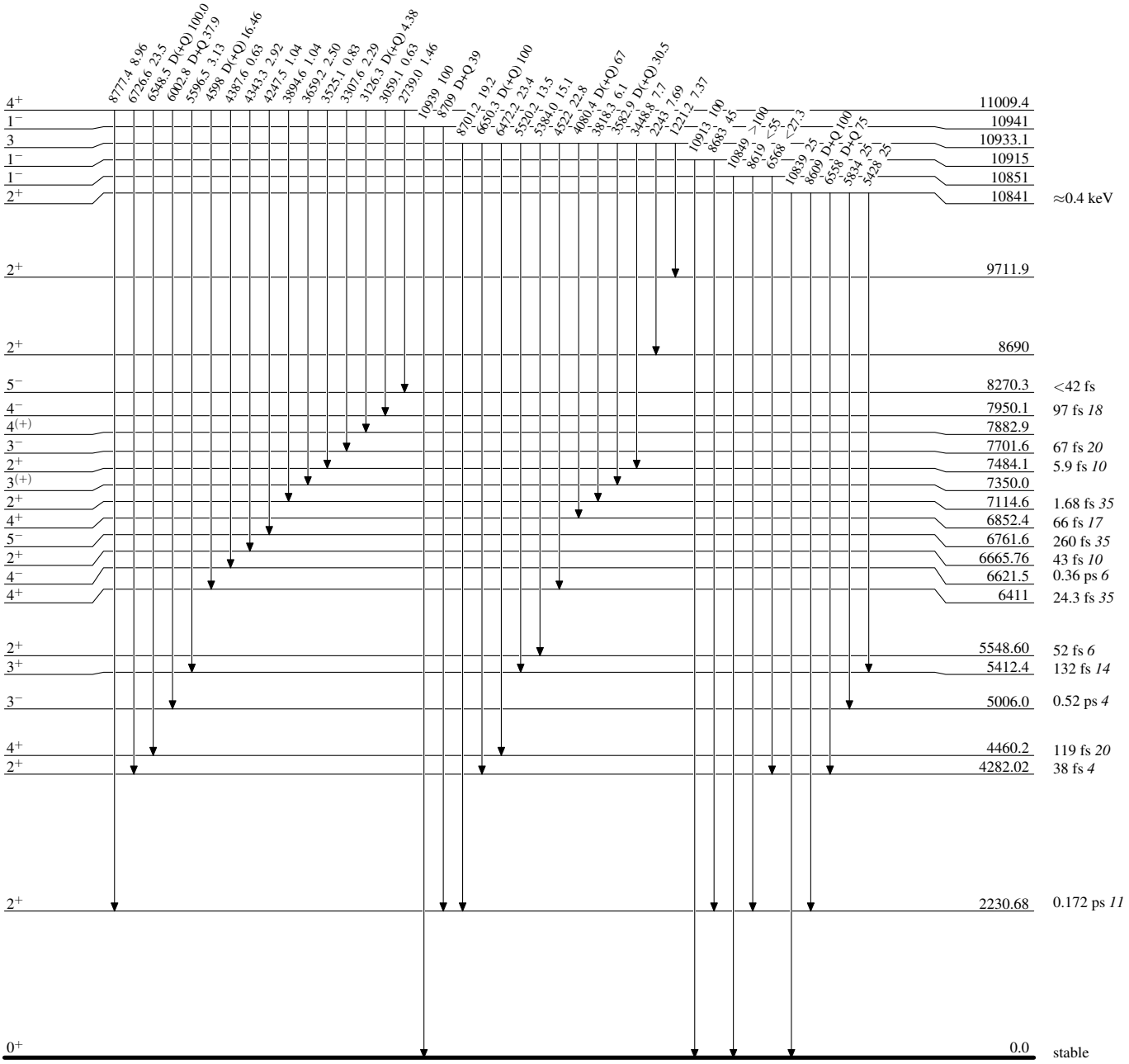


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

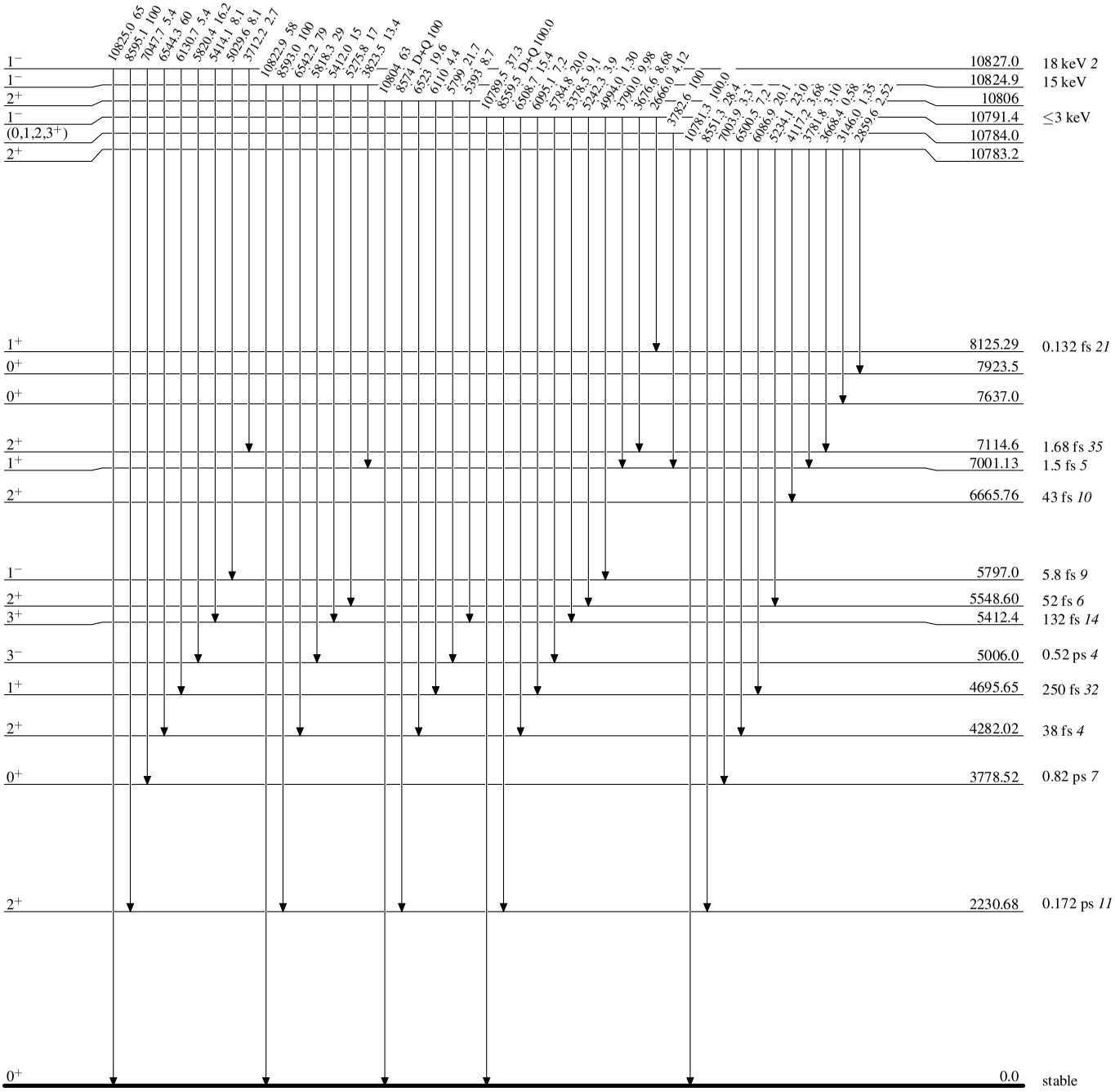


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

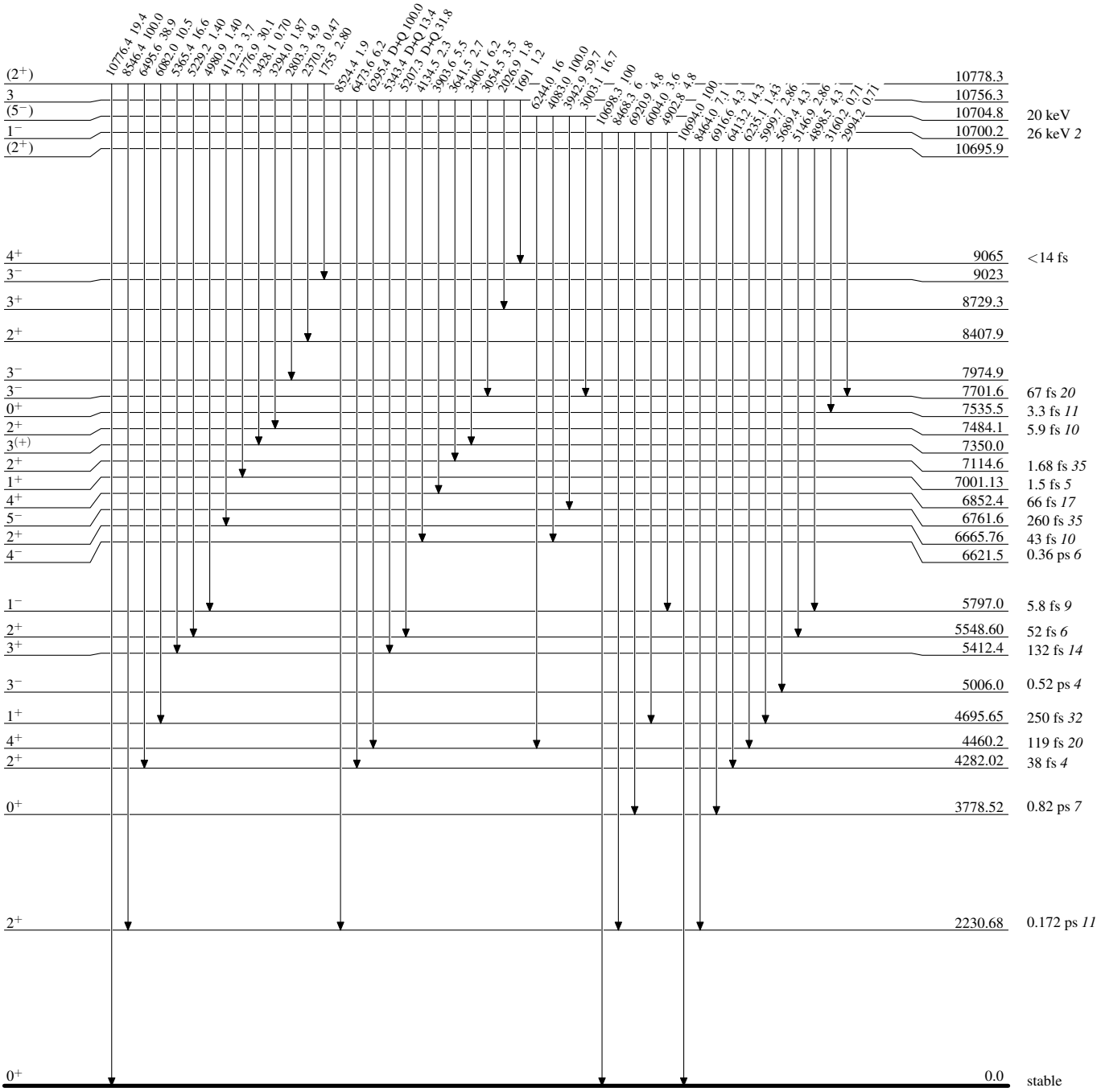


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

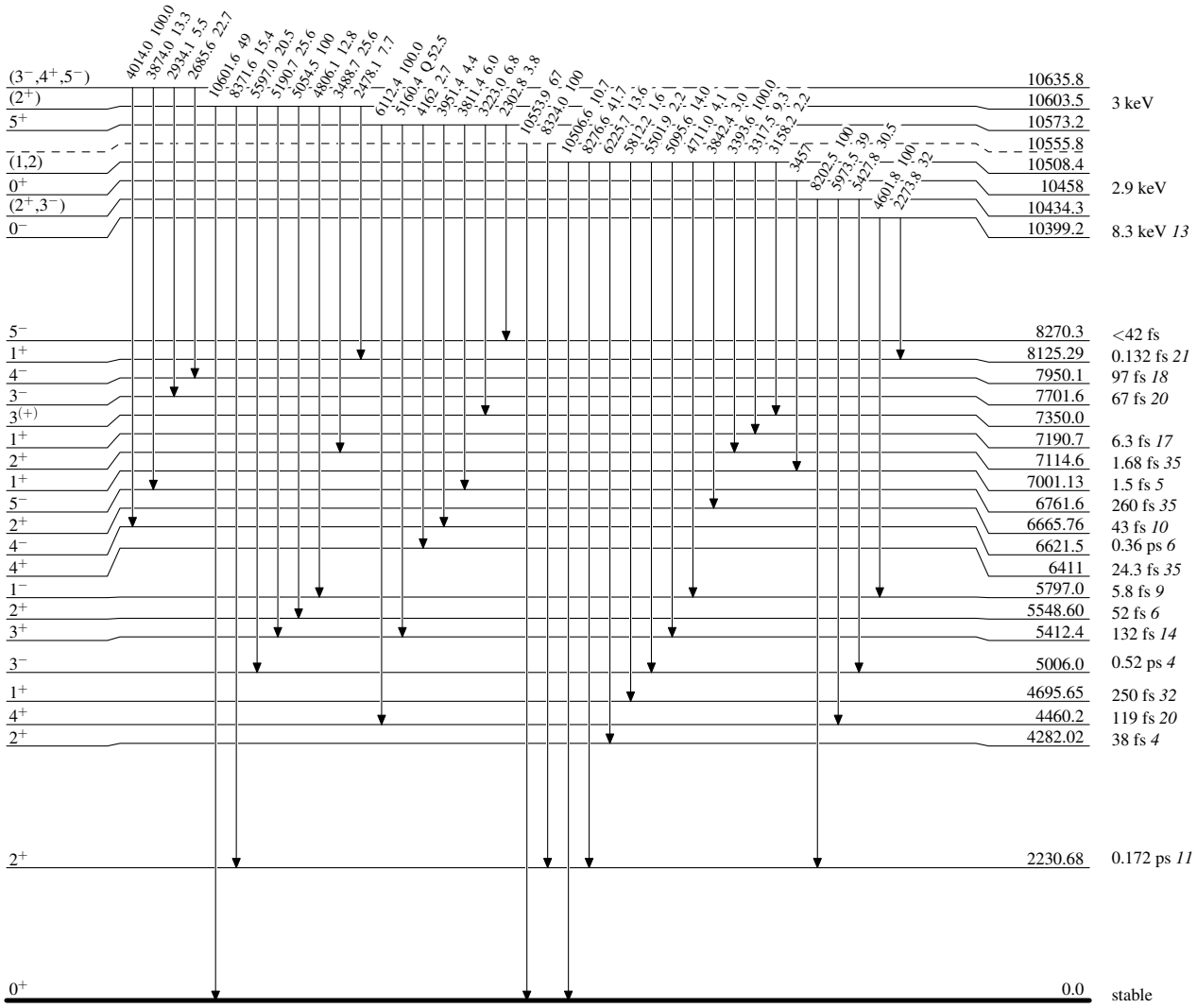


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

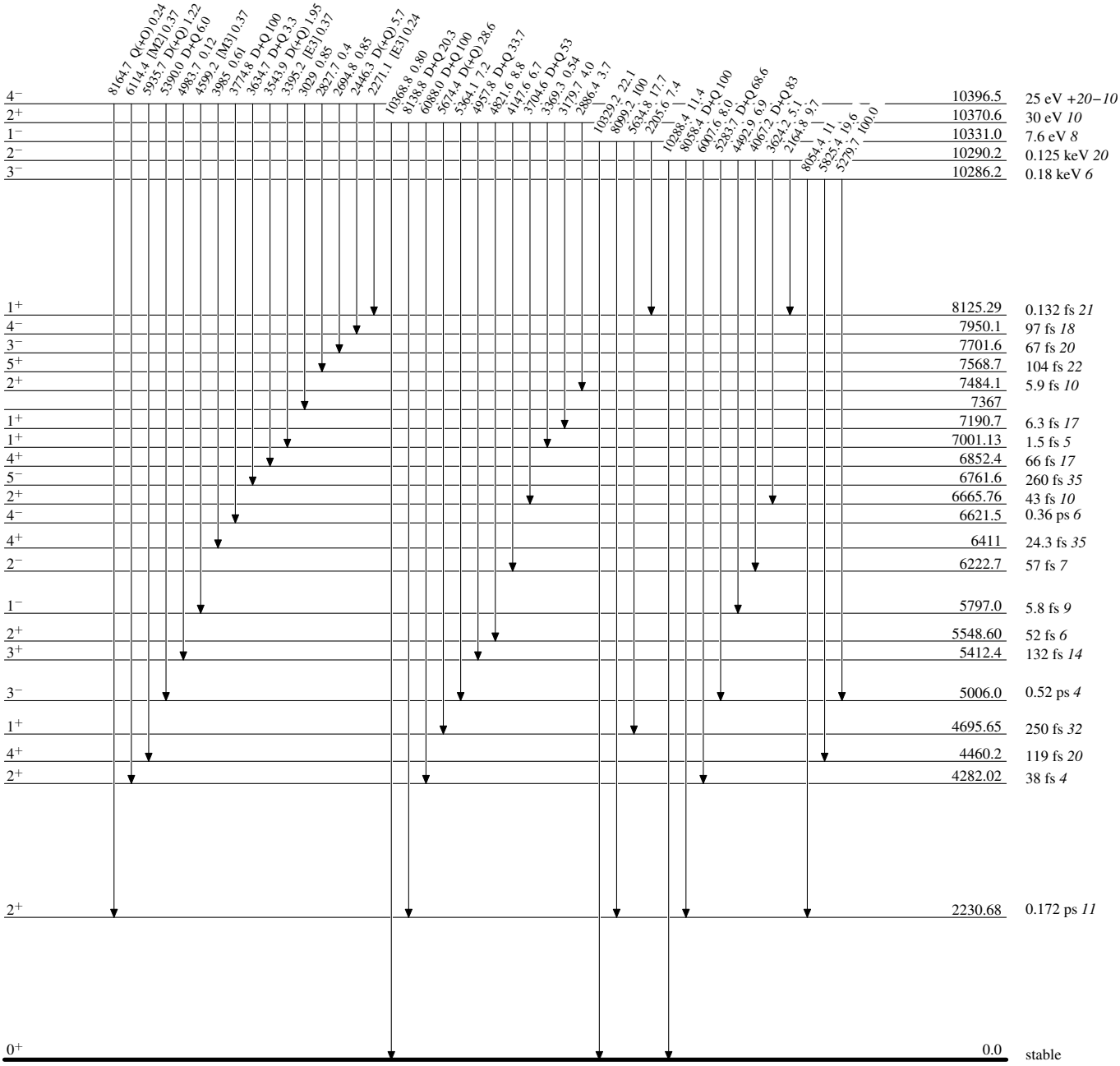


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

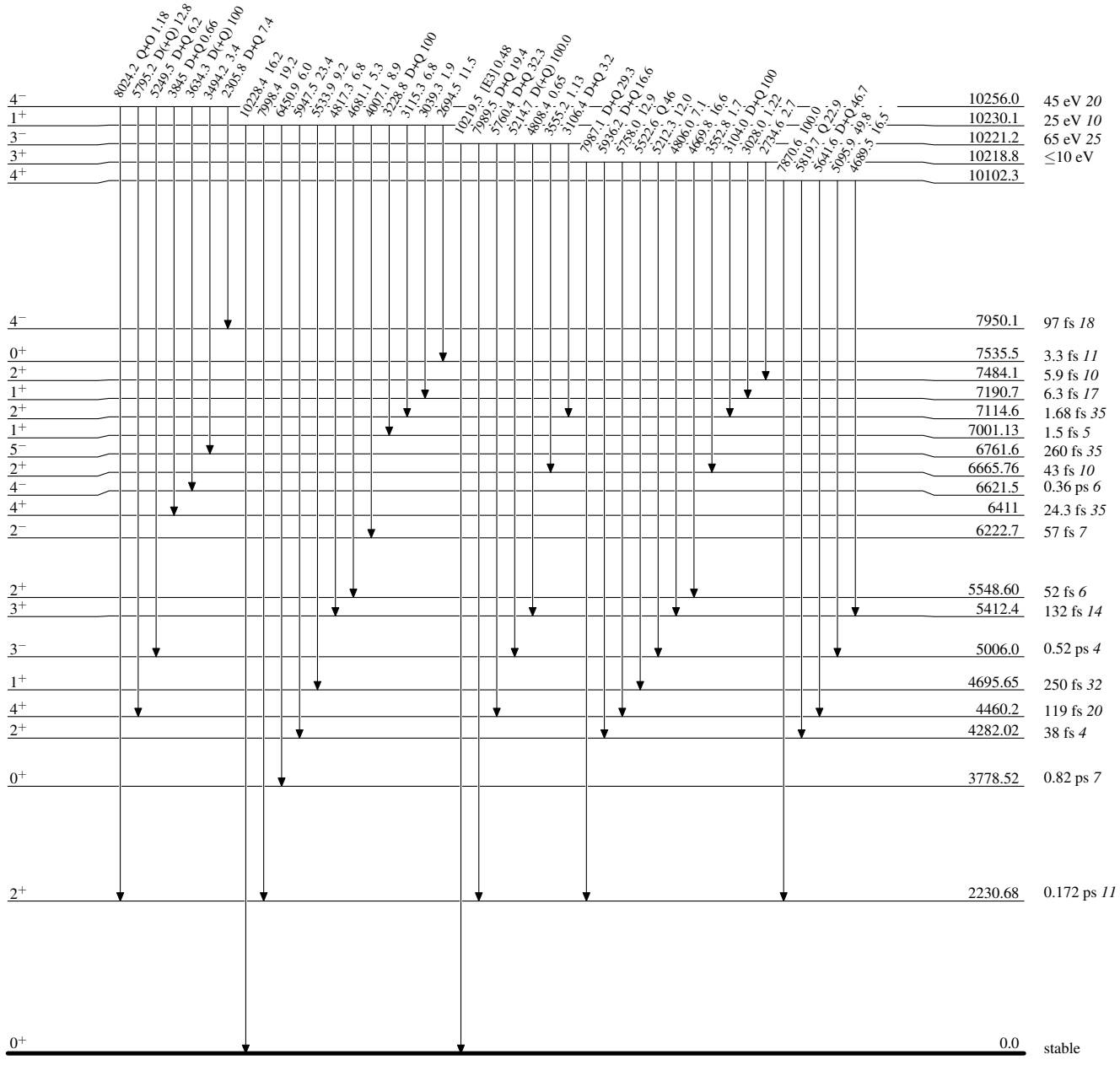


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

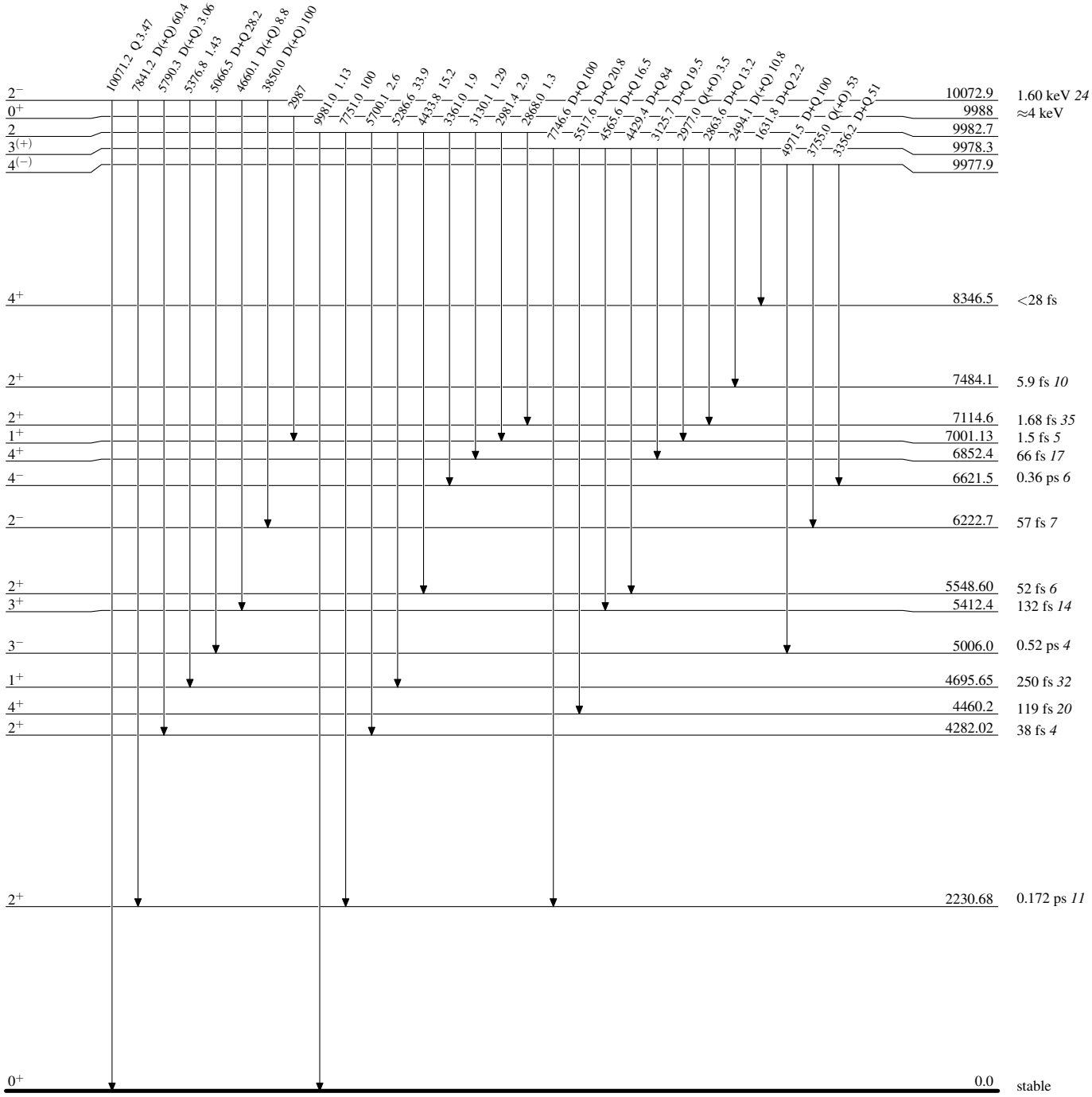


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

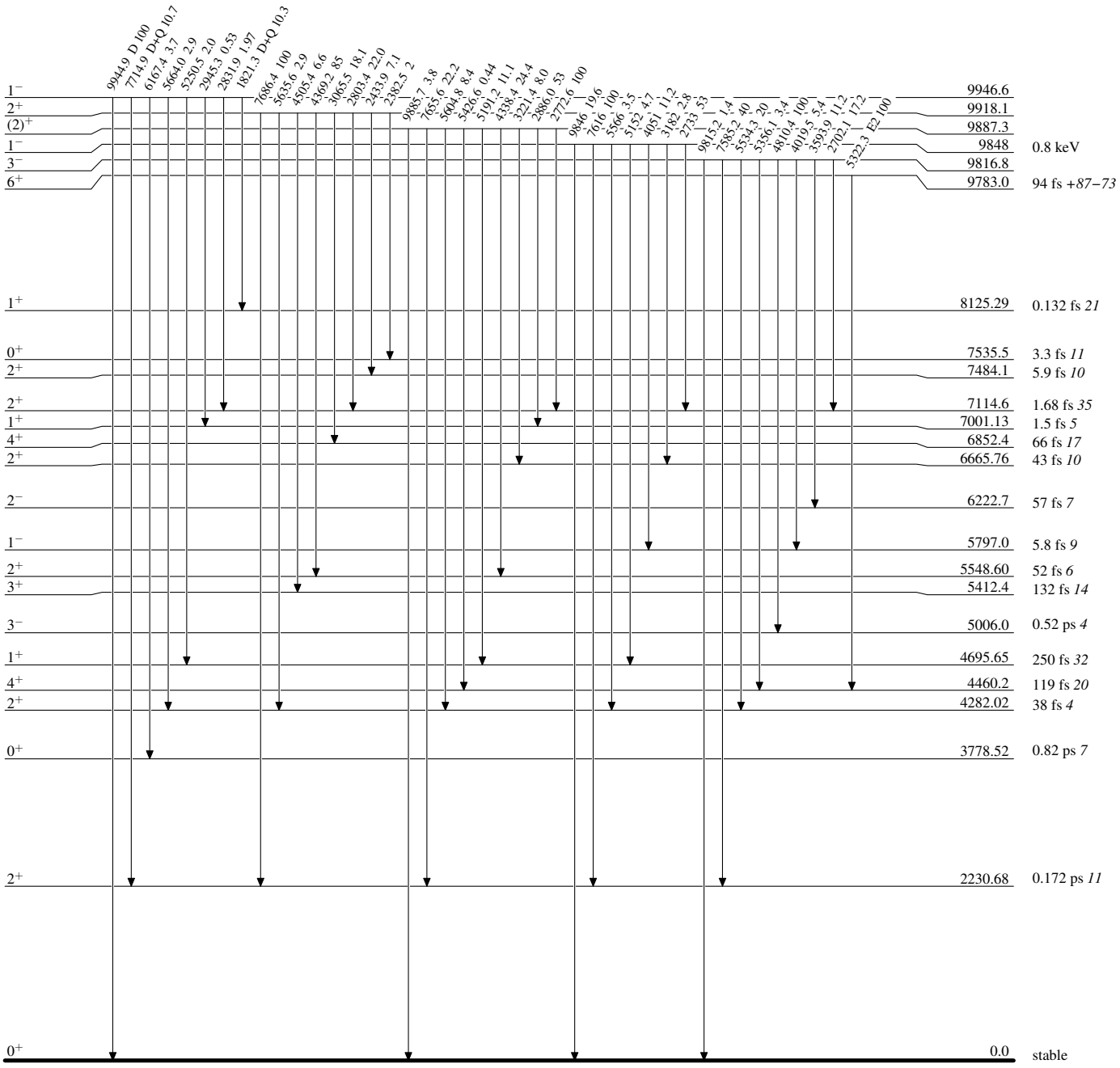


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

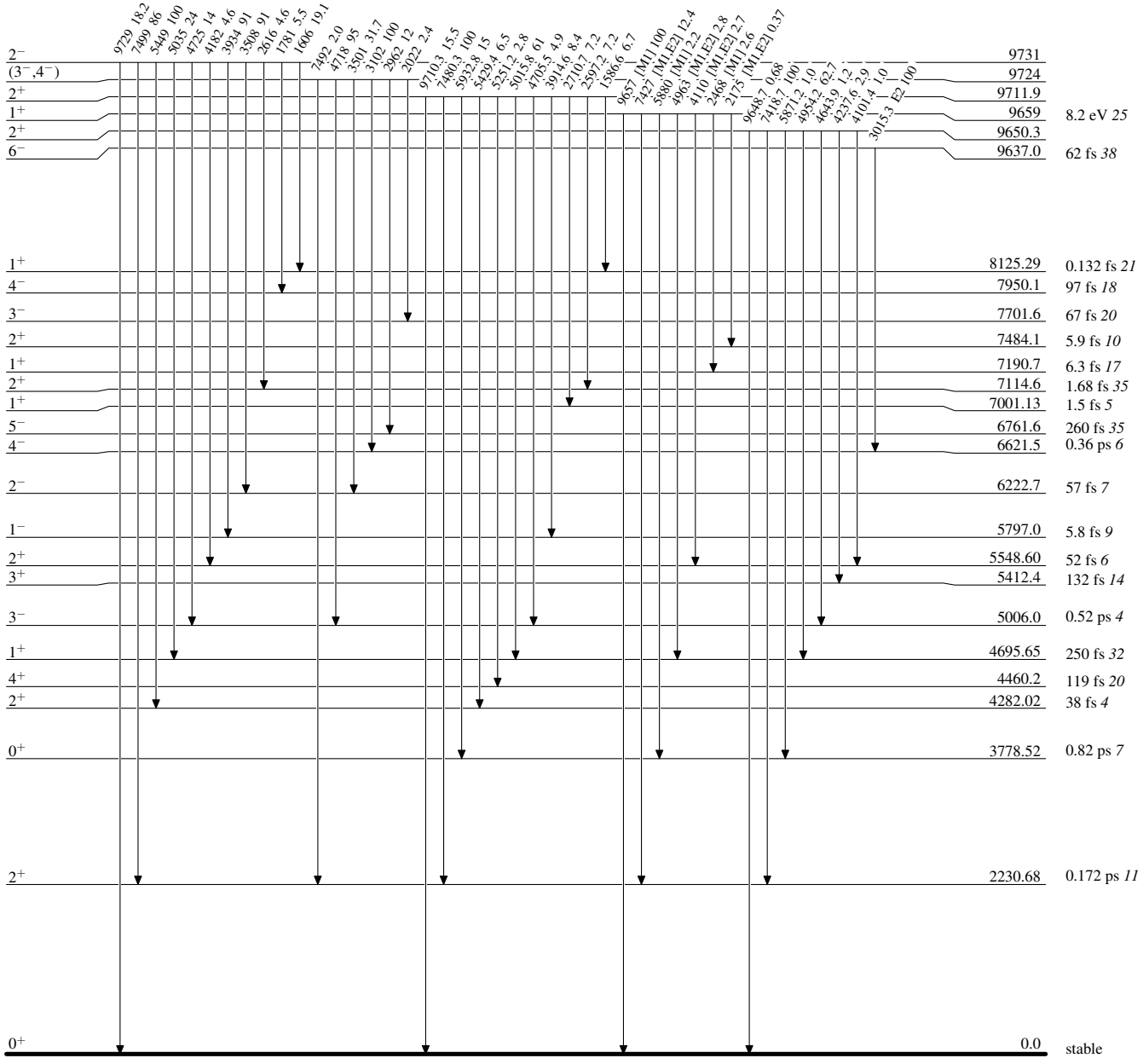


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

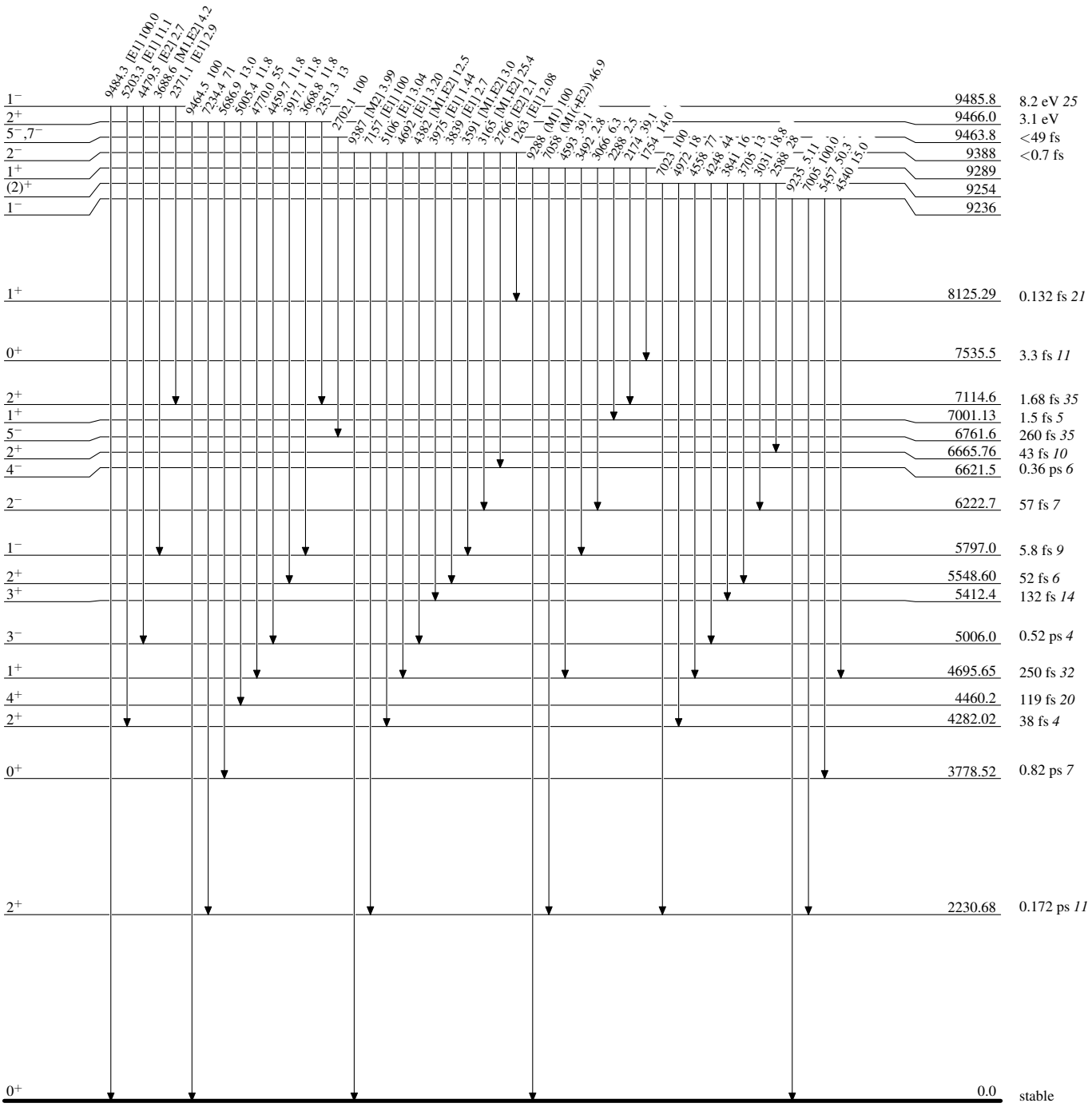


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

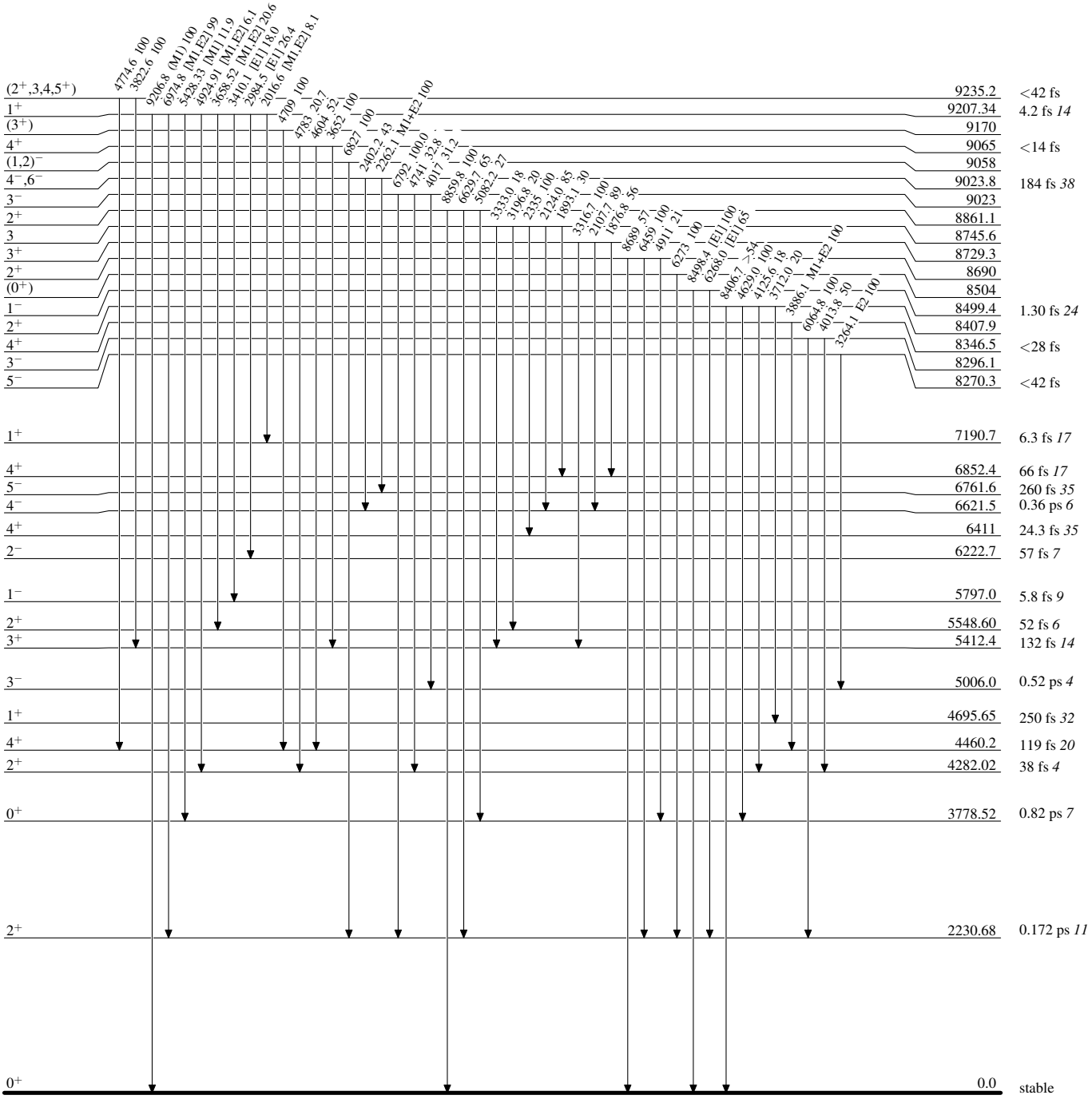


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

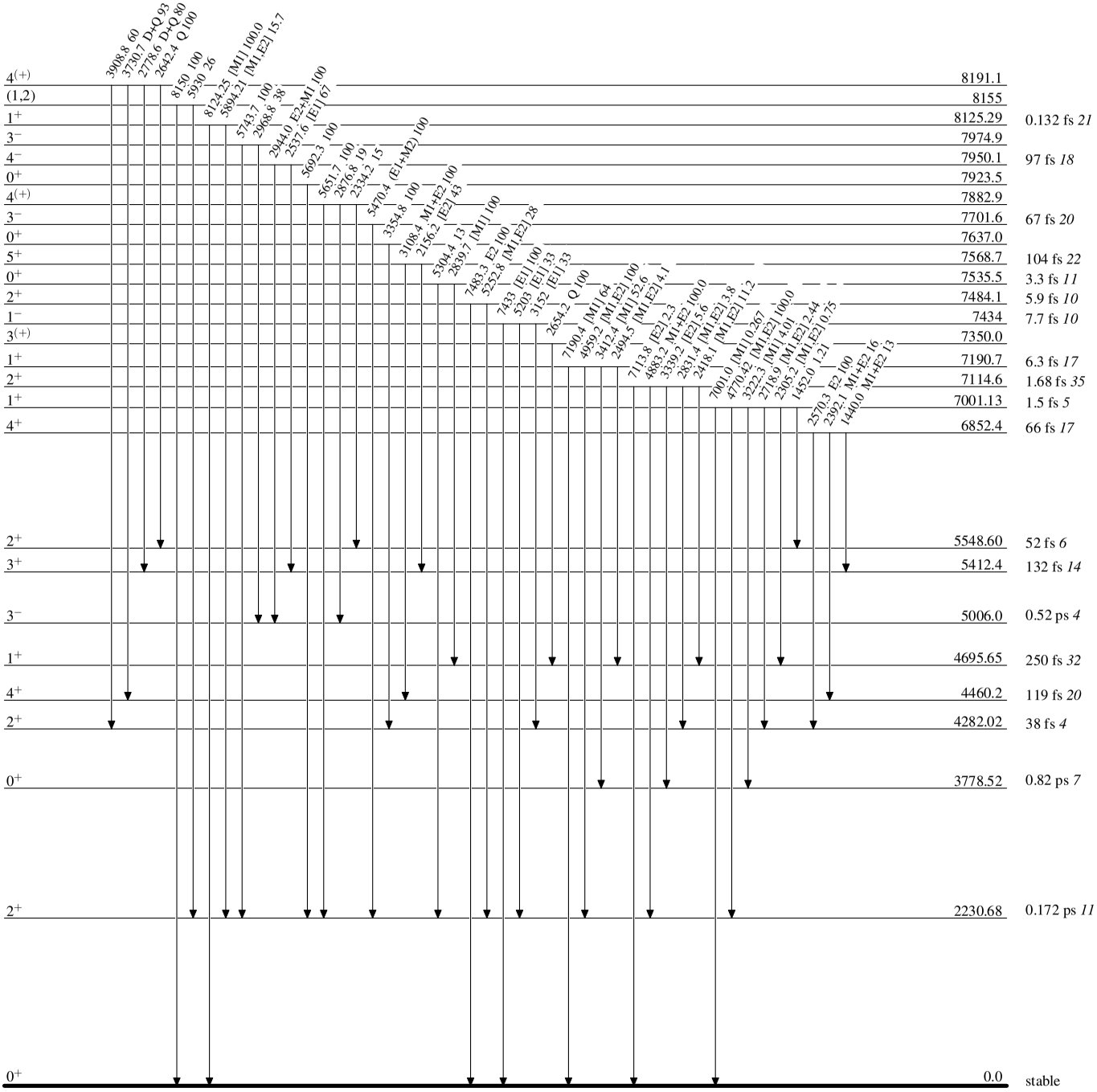


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

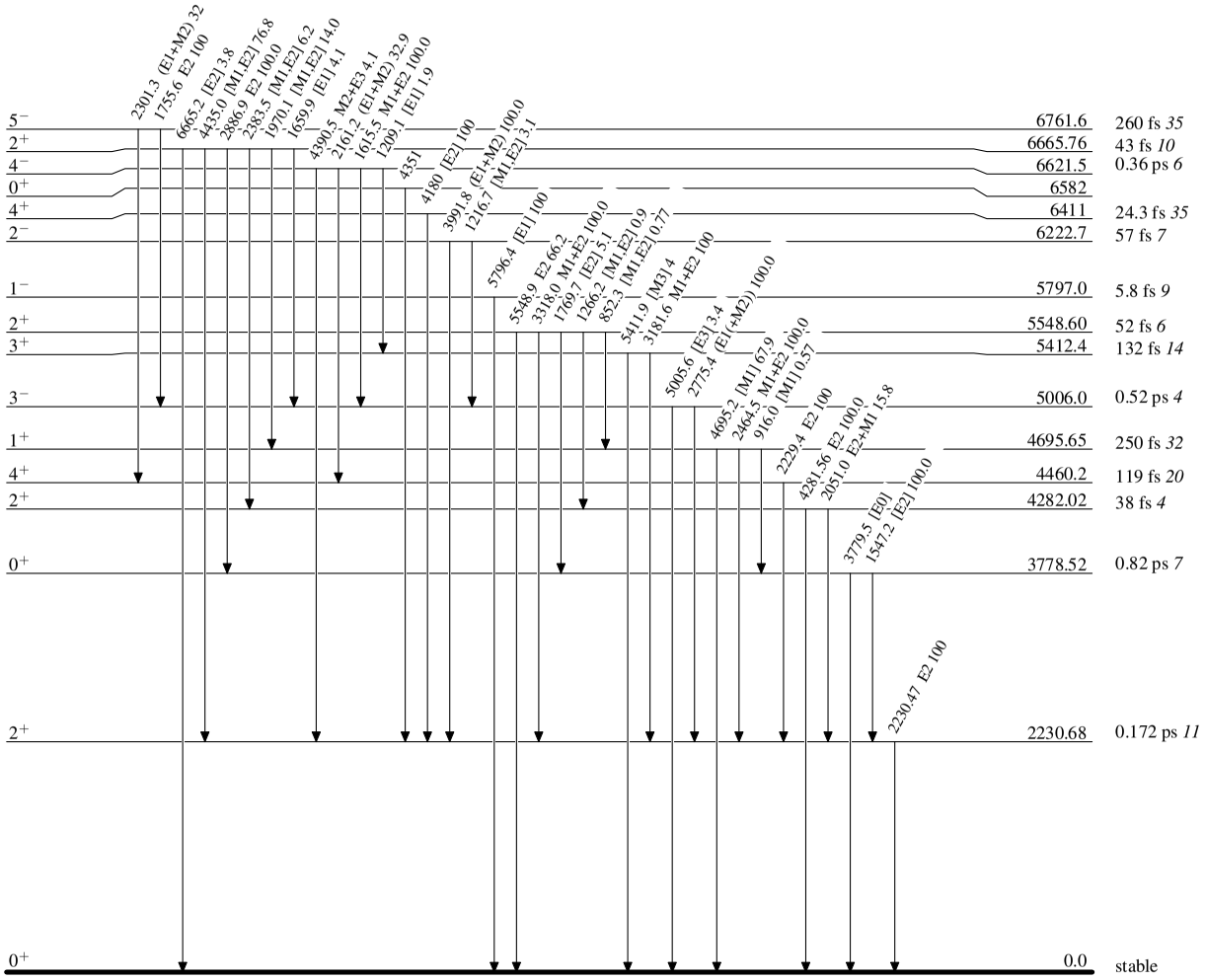


$^{32}_{16}S_{16}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{32}_{16}S_{16}$