Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, E. Browne	NDS 157, 260 (2019)	1-Mar-2019

Q(β^-)=−7946 *8*; S(n)=12553 *7*; S(p)=7842 *8*; Q(α)=−4257 *6* 2017Wa10

1989Ku11: ^{12}C(^{72}Ge,2nγ), E=215 MeV. Transient-field method, deduced g-factors.

1979Al19: Measured $\sigma(\theta)$, neutron time-of-flight, for g.s. in (^{3}He,n), E=25.4 MeV,. Enriched target.

Isotope shift, RMS radii, hyperfine structure studies: 1993He12, 1993Hi11, 1993Ku19, 1994Bu06, 1994Lo12, 1990Bu12 (also 1988Si06), 1987Ea01 (also 1986Ea01), 1987An02 (also 1986An39).

Theoretical calculations:

2016Da01 SDB band-head spin.
2016Mo18 Charge and mass rms radii.
2015Sa26 Low-lying levels, bands pn interacting boson model.
2014Zh43 Deformation parameter.
2010Fa08,2010ZhZQ,2009Fa14 spin-dependence of g-factors in gs band.
2008Mi17 Half-life shell model.
2003Me26 2$^+$ states, g-factors.
2003ReZZ Studied SDB.
2002Bu13 SDB transition quadrupole moments.
2002Li18 SDB transition energies, moements of inertia.
1999Gu11 Calculated cluster-decay probability.
1999Sa46 Hartree-Fock plus RPA.
1997Da16 SD band data, cranked-shell model.
1995Ba45 RMS radii, mean field.
1995Ba78 level energy vs deformation, constrained Hartree-Fock.
1995La07 relativistic mean-filed theory.
1994Do19 levels, mean field.
1994Iw05 level energies, Hartree Fock.
1994Na09 quasi-particle RPA.
1991Ch01 structure of superdeformed GDR.
1991Bo27, 1985Bo36, 1985Na02 microscopic analysis of deformation.
1990Ba11, 1983Bu09, 1984He07, 1995Ke09, 1996Ca10,1997Su08 interacting-boson model.
1982Fu03 cranked-shell model.
1983Ta03 pairing vibrations.
1980Ca23 Hartree-Fock calculation of binding energy and charge radius.
1971Ki16, 1973Og01 shell-model calculations.

^{82}Sr Levels

Cross Reference (XREF) Flags

A	^{82}Y β^+ decay	E	^{84}Sr(p,t)
B	^{56}Fe(^{29}Si,2pnγ)	F	^{80}Kr(α,2nγ)
C	^{52}Cr(^{34}S,2p2nγ)	G	^{58}Ni(^{30}Si,α2pγ),(^{28}Si,4pγ):SD
D	^{70}Ge(^{16}O,2n2pγ)		

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[@]	XREF	Comments
0[d]	0$^+$	25.35 d *3*	ABCDEF	%ε=100 T$_{1/2}$: from T$_{1/2}$=25.36 d *3* (HPGe, 2009Pi02; Ge(Li) 1987Ho06), 25.34 d *2* (ic, 2009Pi02), 25.34 d *5* (1987Ju02). others: 25.55 d *15* (1978Gr17) 25.0 d *4* (1958Sa20), 25.5 d *5* (1953Kr10).

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Adopted Levels, Gammas (continued)

^{82}Sr Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$[@]	XREF	Comments
				$\Delta<r^2>(^{88}Sr-^{82}Sr)$=0.179 fm^2 *24* (1990Bu12,1988Si06); 0.182 fm^2 *6* (1988Si06, deduced from data of 1987Ea01,1986Ea01); 0.169 fm^2 *13* or 0.220 fm^2 *15* (1987An02,1986An39). $\Delta<r^2>(^{83}Sr-^{82}Sr)$=−0.017 fm^2 *7* (1996Li25). $\Delta<r^2>(^{82}Sr-^{81}Sr)$=−0.053 fm^2 *8* (1996Li25).
573.54[d] *8*	2$^+$	8.9[&] ps *4*	ABCDEF	μ=+0.88 *38* (2014Ku10) g=+0.44 *19* (2014Ku10) measured using the transient-field (tf) technique in inverse kinematics with perturbed angular correlation method in $^{12}C(^{78}Kr,2\alpha\gamma)$. Other g=0.47 *7* (2008Yu04,2010Fa08); values of g factors were read from figure 1 of 2008Yu04. J^{π}: L(p,t)=2. $T_{1/2}$: other: 10.7 ps *21* from 1996Jo05 In $^{58}Ni(^{27}Al,3p)$, while studying ^{82}Y.
1175.71[c] *8*	2$^+$	7.5[&] ps *24*	ABCDEF	J^{π}: L(p,t)=2.
1310.89 *13*	0$^+$	<3.5 ns	A E	J^{π}: L(p,t)=0. $T_{1/2}$: from $\gamma\gamma$ and $\beta\gamma$, ^{82}Y β^+ decay.
1328.54[d] *10*	4$^+$	1.0[&] ps *2*	BCD F	μ=+2.1 *16* (2014Ku10) g=+0.53 *39* (2014Ku10) measured using the transient-field (tf) technique in inverse kinematics with perturbed angular correlation method in $^{12}C(^{78}Kr,2\alpha\gamma)$. Other g=0.46 *8* (2008Yu04,2010Fa08); values of g factors were read from figure 1 of 2008Yu04. J^{π}: stretched E2 cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ).
1688.96[b] *11*	3$^+$		BCD F	J^{π}: J=3 from $\gamma(\theta)$ of 1115γ in (^{16}O,2n2pγ); E1 γ from 4$^-$.
1865 *5*	2$^+$		A E	J^{π}: L(p,t)=2.
1996.02[c] *10*	4$^+$	1.3[&] ps *4*	BCD F	J^{π}: stretched E2 cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ).
2195 *5*	2$^+$		E	J^{π}: L(p,t)=2.
2229.47[d] *11*	6$^+$	0.37 ps *+15−11*	BCD F	μ=3.5 *5* (2008Yu04) μ: From g=0.58 *8* (2008Yu04,2010Fa08) measured by transient-magnetic field ion-implantation perturbed angular distribution method in $^{58}Ni(^{28}Si,4p\gamma)$; values of g factors were read from figure 1 of 2008Yu04. J^{π}: stretched E2 cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ). $T_{1/2}$: other value: 0.9 ps *1* from RDM, $^{70}Ge(^{16}O,2n2p\gamma)$.
2401.82[f] *10*	3$^-$		B DE	J^{π}: L(p,t)=3.
2525.80[b] *12*	5$^+$		BCD	
2665 *5*	0$^+$		E	J^{π}: L(p,t)=0.
2817.31[f] *11*	5$^-$	3.0[&] ps *6*	BCDEF	μ=+2 *2* (2014StZZ) J^{π}: from $\gamma(\theta)$ and polarization in (^{16}O,2n2pγ) indicating E1 transition to 4$^+$. μ: From g-factor=+0.3 *4* (1989Ku11), transient-field method.
2824.40[j] *12*	4$^-$		BCD	J^{π}: based on $\gamma(\theta)$ and polarization of the 1136-keV decay γ, $^{70}Ge(^{16}O,2p2n\gamma)$.
2836.26[c] *12*	6$^+$	0.6[&] ps *4*	BCD F	J^{π}: stretched E2 cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ).
2885 *5*	(2$^+$)		E	J^{π}: L(p,t)=(2).
2920 *5*			E	
3006.91[i] *12*	4$^-$		B	J^{π}: D γ's to 3$^+$ and 4$^+$ levels; decays to 3$^-$.
3073.28[g] *14*	(5$^-$)		B	J^{π}: tentative assignment from the seven linking gammas which connect this state to 4$^+$, 6$^+$, 5$^-$, 6$^-$, and 7$^-$ states. The four DCO ratios measured in (^{29}Si,2pnγ) are consistent with this assignment.

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Adopted Levels, Gammas (continued)

^{82}Sr Levels (continued)

E(level)[†]	Jπ[‡]	T1/2[@]	XREF	Comments
3086.23[j] 12	6⁻		BCD	Jπ: γ to (5)⁻ shows ΔJ=1 angular distribution, (^{16}O,2p2nγ); γ to 4⁻ is consistent with stretched E2.
3142.30[h] 22	(5⁻)		B	Jπ: fed by 465γ from 7⁻, and decays to 4⁺.
3242.82[d] 12	8⁺	0.24 ps +10−6	BCD F	μ=6.6 10 (2008Yu04) μ: From g=0.82 12 (2008Yu04,2010Fa08) measured by transient-magnetic field ion-implantation perturbed angular distribution method in ^{58}Ni(^{28}Si,4pγ); values of g factors were read from figure 1 of 2008Yu04. Jπ: stretched E2 γ to 6⁺ state. g-factor=+0.7 1 (1989Ku11) transient-field method. $T_{1/2}$=0.76 ps 14 (1989Ku11).
3339.57[i] 12	6⁻		B F	μ=+5.4 6 μ: From g-factor=+0.9 1 (1989Ku11), transient-field method.
3476.96[b] 15	7⁺		BCD	
3511.15 13	(7)⁻		CD	Jπ: stretched E2 γ cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ).
3525.75[f] 12	7⁻		BCD	Jπ: from γ(θ) in (^{16}O,2n2pγ), consistent with DCO ratios of decay γ′s obtained in (^{29}Si,2pnγ).
3565.75[g] 13	7⁻		BCD	Jπ: DCO ratio of 801γ from 9⁻ state is consistent with Q.
3607.94[h] 13	7⁻		BCD	Jπ: DCO ratio of 758γ from 9⁻ state is consistent with Q.
3622.78[c] 12	8⁺	0.7[&] ps 4	BCD F	μ=+5.6 8 (2014StZZ) Jπ: stretched E2 cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ). μ: From g-factor=+0.7 1 (1989Ku11), transient-field method.
3686.07[e] 15	(8⁺)[#]		BCD F	Jπ: γ(θ) indicates probable ΔJ=0 transition to 8⁺. DCO ratio of γ to 6⁺ is consistent with Q.
4033.49[i] 15	8⁻		B	Jπ: DCO ratio of γ to 6⁻ is consistent with Q.
4142.60[j] 14	8⁻		B	Jπ: stretched E2 γ to 6⁻ state.
4248.4 10			C	
4350.30[d] 15	10⁺	0.14 ps +6−4	BCD F	Jπ: DCO ratio of γ to 8⁺ is consistent with Q, M2 ruled out by RUL.
4366.82[f] 14	9⁻		BCD	Jπ: 841γ to 7⁻ is consistent with Q.
4387.09 14	(9⁻)		CD	Jπ: stretched E2 cascade indicated by angular distribution in (^{16}O,2n2pγ).
4423.85[c] 14	10⁺	0.9[&] ps 2	BCD	μ=+11 5 (2014StZZ) Jπ: stretched E2 cascade indicated by angular distribution and polarization in (^{16}O,2n2pγ). μ: From g-factor=+1.1 5 (1989Ku11), transient-field method.
4472.85[g] 14	9⁻		B	Jπ: from DCO ratios of decay γ′s.
4492.5[b] 4	9⁺		B	Jπ: DCO ratio of γ to 7⁺ is consistent with Q.
4637.34[e] 18	(10⁺)[#]		BC	Jπ: DCO ratio of 1395γ to 8⁺ state is consistent with Q.
4909.39[i] 18	10⁻	0.36 ps +11−8	BC	Jπ: stretched E2 γ to 8⁻ state.
5237.4[j] 4	10⁻		B	
5308.15[f] 17	11⁻	0.30 ps +10−7	BCD	Jπ: stretched E2 γ to 9⁻ state.
5333.8 15			C	
5392.31? 18			D	
5427.12[c] 17	12⁺	0.33 ps +11−8	BCD	Jπ: stretched E2 γ to 10⁺ state.
5468.9 10			B	
5479.09[g] 25	(11⁻)		B	
5569.0[d] 4	12⁺	0.06 ps 6	BC	Jπ: DCO ratio of γ to 10⁺ is consistent with Q, M2 ruled out by RUL.
5738.2[e] 5	(12⁺)[#]		BC	
5913.9[i] 4	12⁻	0.27 ps +11−8	BCD	Jπ: stretched E2 γ to 10⁻ state.
6367.2[f] 3	13⁻	0.15 ps +8−6	BCD	Jπ: stretched E2 γ to 11⁻ state.
6450.1 11			B	

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Adopted Levels, Gammas (continued)

^{82}Sr Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
6543.6[c] 4	14+	0.25 ps +11−9	BCD	Jπ: stretched E2 γ to 12+ state.
6556.4 18			C	
6564.8[g] 4	(13−)		B	
6937.0[d] 5	(14+)	0.04 ps +6−3	BC	
7066.5[i] 5	14−	0.08 ps +5−4	BC	Jπ: stretched E2 γ to 12− state.
7534.6 11			B	
7545.5[f] 4	15−	0.12 ps 5	BC	Jπ: stretched E2 γ to 13− state.
7788.2[g] 5	(15−)		B	Jπ: DCO ratio of γ to (13−) state is consistent with Q, M2 ruled out by RUL.
7812.0[c] 6	16+	0.09 ps +5−4	BC	Jπ: stretched E2 γ to 14+ state.
7936.1 20			C	
8377.6[i] 6	16−	0.14 ps 6	BC	Jπ: stretched E2 γ to 14− state.
8434.6[d] 6	(16+)	<0.18 ps	BC	Jπ: stretched E2 γ to (14+) state.
8842.0[f] 7	17−	0.08 ps 6	BC	Jπ: stretched E2 γ to 15− state.
9167.4[g] 7	(17−)		B	
9237.8[c] 7	18+	0.05 ps +7−4	BC	Jπ: DCO ratio of γ to 16+ is consistent with Q, M2 ruled out by RUL.
9478.1 23			C	
9842.6[i] 12	(18−)	<0.19[a] ps	BC	
10061.6 12	(18+)		C	
10258.8[f] 9	(19−)	0.08 ps +6−4	BC	
10709.4[g] 12	(19−)		B	
10872.4[c] 9	(20+)	<0.21[a] ps	BC	
11379.6[i] 16	(20−)		BC	
11798.4[f] 10	(21−)	<0.06[a] ps	BC	
11837.6? 16	(20+)		C	
12758.8 13	(22+)		C	
13005.7[i] 19	(22−)		BC	
13489.4[f] 14	(23−)		BC	
14832.7? 21	(24)		C	
14910.8 17	(24+)		C	
15409.4 17	(25)		C	
17246.9? 20	(26−)		C	
17616.5 20	(27)		C	
x[k]	J		G	Additional information 1. Jπ: ≈18 from 2003Le08. Others: J≈(19) from 1995Sm08.
1432.0+x[k] 10	J+2		G	
3027.0+x[k] 15	J+4		G	
4783.0+x[k] 18	J+6		G	
6703.1+x[k] 20	J+8		G	
8780.1+x[k] 23	J+10		G	
11010.1+x[k] 25	J+12		G	
13393+x[k] 3	J+14		G	
15938+x[k] 3	J+16		G	
18674+x?[k] 3	J+18		G	

† Levels with ΔE=5 keV are from (p,t), all others are deduced from the adopted gammas.

‡ Within each band, the firm assignments come from DCO ratios in (^{29}Si,2pnγ), except as noted otherwise, whereas the uncertain assignments for the high energy members indicate that the DCO ratios are either not available or not conclusive.

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Adopted Levels, Gammas (continued)

^{82}Sr Levels (continued)

[#] Tentative assignment in (^{29}Si,2pnγ) supported by DCO ratios; positive parity from decay to positive parity states only.
[@] From DSAM in ^{56}Fe(^{29}Si,2pnγ), unless stated otherwise.
[&] From recoil-distance Doppler shift, ^{66}Zn(^{19}F,p2nγ) (1981DeYW).
[a] Effective half-life, not corrected for direct or side feeding (1994Ta01).
[b] Band(A): π=+.
[c] Band(B): π=+.
[d] Band(C): π=+.
[e] Band(D): π=+.
[f] Band(E): π=−. Yrast odd-spin band.
[g] Band(F): π=−. Second odd-spin band.
[h] Band(G): π=−. Third odd-spin band.
[i] Band(H): π=−. Yrast even-spin band.
[j] Band(I): π=−. Second even-spin band.
[k] Band(J): SD band (1995Sm08,1998Yu01,2003Le08). Q(intrinsic)=3.54 *+15−14* (1999Le56,2003Le08,2004La18), 4.5 *9* (1998Yu01). β_2=0.50 from Q(intrinsic)=4.5 (1999Le56), calculated Q(intrinsic)=3.3 *2* (for ^{70}Ge+^{12}C cluster), 5.6 *2* (for ^{54}Cr+^{28}Si cluster) (2001Bu02). Percent population=1.0-1.5 (1995Sm08), ≈2.5 (1998Yu01), 0.63 (2003Le08). Probable configuration=$\nu5^2\pi5^1$(π1/2[431] α=−1/2) with π=−, α=1 (1998Yu01), $\nu5^1\pi5^0$ (1999Le56,2003Le08).

$\gamma(^{82}\mathrm{Sr})$

E_i(level)	J^π_i	E_γ†	I_γ&	E_f	J^π_f	Mult.c	δcf	αe	Comments
573.54	2^+	573.64# *10*	100	0	0^+	E2		0.00245	α(K)=0.00216 *3*; α(L)=0.000243 *4*; α(M)=4.07×10^{-5} *6* α(N)=5.07×10^{-6} *7*; α(O)=3.16×10^{-7} *5* B(E2)(W.u.)=48.3 *22*
1175.71	2^+	602.15# *10*	100b *7*	573.54	2^+	M1(+E2)	+1.2 *14*	0.00196 *24*	B(M1)(W.u.)≤0.012; B(E2)(W.u.)≤49 α(K)=0.00173 *21*; α(L)=0.00019 *3*; α(M)=3.2×10^{-5} *5* α(N)=4.0×10^{-6} *6*; α(O)=2.6×10^{-7} *3*
		1175.6 *1*	10.4 *8*	0	0^+	[E2]		4.07×10^{-4}	B(E2)(W.u.)=0.15 *5* α(K)=0.000356 *5*; α(L)=3.86×10^{-5} *6*; α(M)=6.47×10^{-6} *9* α(N)=8.12×10^{-7} *12*; α(O)=5.28×10^{-8} *8*; α(IPF)=5.06×10^{-6} *8*
1310.89	0^+	737.35‡ *10*	100	573.54	2^+				
1328.54	4^+	754.9 *1*	100	573.54	2^+	E2		1.15×10^{-3}	B(E2)(W.u.)=109 *22* α(K)=0.001020 *15*; α(L)=0.0001127 *16*; α(M)=1.89×10^{-5} *3* α(N)=2.36×10^{-6} *4*; α(O)=1.503×10^{-7} *21*
1688.96	3^+	359.9 *3*	9 *3*	1328.54	4^+				
		512.9 *2*	80 *12*	1175.71	2^+				
		1114.9 *1*	100 *15*	573.54	2^+				
1865	2^+	688.9‡ *4*	31 *19*	1175.71	2^+				
		1291.0‡ *6*	100 *19*	573.54	2^+				
		1865.3‡ *15*	31 *19*	0	0^+				
1996.02	4^+	667.53# *10*	60 *9*	1328.54	4^+	M1(+E2)	+0.3 *7*	0.00137 *11*	B(M1)(W.u.)=0.019 *10*; B(E2)(W.u.)≤25 α(K)=0.00122 *10*; α(L)=0.000132 *12*; α(M)=2.22×10^{-5} *20* α(N)=2.79×10^{-6} *24*; α(O)=1.82×10^{-7} *12*
		820.25# *10*	100 *12*	1175.71	2^+	E2		9.34×10^{-4}	B(E2)(W.u.)=34 *12* α(K)=0.000826 *12*; α(L)=9.08×10^{-5} *13*; α(M)=1.524×10^{-5} *22* α(N)=1.91×10^{-6} *3*; α(O)=1.219×10^{-7} *17*
		1422.4 *3*	5 *2*	573.54	2^+				
2229.47	6^+	900.84# *10*	100	1328.54	4^+	E2		7.41×10^{-4}	B(E2)(W.u.)=1.2×10^{2} *+4−5* α(K)=0.000656 *10*; α(L)=7.18×10^{-5} *10*; α(M)=1.205×10^{-5} *17* α(N)=1.508×10^{-6} *22*; α(O)=9.70×10^{-8} *14*
2401.82	3^-	712.4# *1*	100b *8*	1688.96	3^+				
		1828.4# *1*	29b *8*	573.54	2^+				
2525.80	5^+	529.8 *2*	13 *4*	1996.02	4^+				
		837.1 *1*	100 *22*	1688.96	3^+				
		1197.1 *2*	21 *6*	1328.54	4^+				
2817.31	5^-	415.17# *10*	13b *13*	2401.82	3^-	[E2]		0.00655	α(K)=0.00576 *8*; α(L)=0.000664 *10*; α(M)=0.0001115 *16* α(N)=1.377×10^{-5} *20*; α(O)=8.31×10^{-7} *12*

$\gamma(^{82}Sr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[c]	δ[cf]	α[e]	Comments
2817.31	5^-	1489.00[#] *10*	100[b] *13*	1328.54	4^+	E1		3.59×10^{-4}	B(E1)(W.u.)=3.2×10^{-5} *10* α(K)=0.0001086 *16*; α(L)=1.154×10^{-5} *17*; α(M)=1.93×10^{-6} *3* α(N)=2.43×10^{-7} *4*; α(O)=1.602×10^{-8} *23*; α(IPF)=0.000237 *4*
2824.40	4^-	422.6 *3*	7 *2*	2401.82	3^-				
		828.4 *2*	16 *4*	1996.02	4^+				
		1135.52[#] *10*	100 *13*	1688.96	3^+	E1(+M2)	+0.03 *5*	2.11×10^{-4} *5*	α(K)=0.000175 *5*; α(L)=1.86×10^{-5} *5*; α(M)=3.12×10^{-6} *9* α(N)=3.93×10^{-7} *11*; α(O)=2.58×10^{-8} *7*; α(IPF)=1.430×10^{-5} *22*
		1494.9 *3*	5 *2*	1328.54	4^+				
2836.26	6^+	606.65[#] *10*	50[b] *3*	2229.47	6^+	M1(+E2)	+0.2 *3*	0.00170 *7*	B(M1)(W.u.)=0.05 *4*; B(E2)(W.u.)≤28 α(K)=0.00150 *6*; α(L)=0.000163 *8*; α(M)=2.74×10^{-5} *13* α(N)=3.45×10^{-6} *16*; α(O)=2.26×10^{-7} *8*
		840.24[#] *10*	100[b] *8*	1996.02	4^+	E2		8.79×10^{-4}	B(E2)(W.u.)=7.E+1 *5* α(K)=0.000778 *11*; α(L)=8.54×10^{-5} *12*; α(M)=1.434×10^{-5} *20* α(N)=1.79×10^{-6} *3*; α(O)=1.148×10^{-7} *16*
3006.91	4^-	605.1 *1*	60 *20*	2401.82	3^-				
		1010.7 *2*	20 *10*	1996.02	4^+				
		1318.3 *3*	100 *20*	1688.96	3^+				
		1677.6 *4*	40 *10*	1328.54	4^+				
3073.28	(5^-)	255.4 *3*	7 *7*	2817.31	5^-				
		843.6 *2*	64 *14*	2229.47	6^+				
		1077.4 *2*	100 *21*	1996.02	4^+				
3086.23	6^-	261.83[#] *10*	100 *9*	2824.40	4^-				
		269.02[#] *10*	78 *9*	2817.31	5^-				
		560.8 *2*	22 *4*	2525.80	5^+				
3142.30	(5^-)	1812.8 *4*	100	1328.54	4^+				
3242.82	8^+	1013.36[#] *10*	100	2229.47	6^+	E2		5.61×10^{-4}	B(E2)(W.u.)=1.0×10^{2} *+3−5* α(K)=0.000497 *7*; α(L)=5.41×10^{-5} *8*; α(M)=9.08×10^{-6} *13* α(N)=1.138×10^{-6} *16*; α(O)=7.36×10^{-8} *11*
3339.57	6^-	266.2 *2*	4 *1*	3073.28	(5^-)				
		332.5 *2*	8 *2*	3006.91	4^-				
		522.1 *1*	100 *12*	2817.31	5^-				
		813.9 *1*	16 *3*	2525.80	5^+				
		1110.3 *2*	16 *3*	2229.47	6^+				
3476.96	7^+	951.15[#] *10*	100	2525.80	5^+				
3511.15	$(7)^-$	424[@g]		3086.23	6^-				
		694.04 *10*	100 *7*	2817.31	5^-	E2		1.44×10^{-3}	α(K)=0.001273 *18*; α(L)=0.0001413 *20*; α(M)=2.37×10^{-5} *4* α(N)=2.96×10^{-6} *5*; α(O)=1.87×10^{-7} *3*

$^{82}_{38}Sr_{44}$-7

γ(^{82}Sr) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[c]	δ[c][f]	α[e]	Comments
3511.15	(7)$^-$	1281.1[#] 2	4.6[b] 8	2229.47	6$^+$				
3525.75	7$^-$	439.88[#] 10	8 2	3086.23	6$^-$				
		451.9 3	4 1	3073.28	(5$^-$)				
		707.9 2	7 2	2817.31	5$^-$				
		1296.19[#] 10	100 12	2229.47	6$^+$	D(+Q)	+0.5 5		
3565.75	7$^-$	479.3 2	17 6	3086.23	6$^-$				
		492.7 4	1 1	3073.28	(5$^-$)				
		748.3 2	14 1	2817.31	5$^-$				
		1336.5 2	100 13	2229.47	6$^+$				
3607.94	7$^-$	465.4 2	30 8	3142.30	(5$^-$)				
		522.09[#] 10	100 14	3086.23	6$^-$	(M1+E2)	−0.7 5	0.0027 3	α(K)=0.00234 22; α(L)=0.00026 3; α(M)=4.4×10^{-5} 5 α(N)=5.5×10^{-6} 6; α(O)=3.5×10^{-7} 3
		534.6 2	35 8	3073.28	(5$^-$)				
		771.8 2	68 68	2836.26	6$^+$				
		790.6 2	32 8	2817.31	5$^-$				
		1378.6 2	73 19	2229.47	6$^+$				
3622.78	8$^+$	379.96[#] 10	8.8[b] 9	3242.82	8$^+$				
		786.36[#] 10	100[b] 7	2836.26	6$^+$	E2		1.04×10^{-3}	B(E2)(W.u.)=1.0×10^2 6 α(K)=0.000918 13; α(L)=0.0001013 15; α(M)=1.699×10^{-5} 24 α(N)=2.12×10^{-6} 3; α(O)=1.355×10^{-7} 19
		1393.5[#] 1	18[b] 6	2229.47	6$^+$	[E2]		3.31×10^{-4}	B(E2)(W.u.)=1.0 7 α(K)=0.000249 4; α(L)=2.68×10^{-5} 4; α(M)=4.49×10^{-6} 7 α(N)=5.65×10^{-7} 8; α(O)=3.69×10^{-8} 6; α(IPF)=5.01×10^{-5} 7
3686.07	(8$^+$)	443.28[#] 10	100 15	3242.82	8$^+$				
		1456.2[#] 3	36 11	2229.47	6$^+$				
4033.49	8$^-$	507.9 3	8 2	3525.75	7$^-$				
		693.9 1	100 22	3339.57	6$^-$				
4142.60	8$^-$	534.7 2	26 8	3607.94	7$^-$				
		577.0 2	31 8	3565.75	7$^-$				
		617.1 4	8 3	3525.75	7$^-$				
		1056.3 1	100 23	3086.23	6$^-$	E2[d]		5.10×10^{-4}	α(K)=0.000452 7; α(L)=4.91×10^{-5} 7; α(M)=8.25×10^{-6} 12 α(N)=1.034×10^{-6} 15; α(O)=6.69×10^{-8} 10
4248.4		1005.6[@]	100	3242.82	8$^+$				
4350.30	10$^+$	1107.47[#] 10	100	3242.82	8$^+$	(E2)		4.60×10^{-4}	B(E2)(W.u.)=1.1×10^2 +4−5 α(K)=0.000406 6; α(L)=4.41×10^{-5} 7; α(M)=7.40×10^{-6} 11 α(N)=9.28×10^{-7} 13; α(O)=6.02×10^{-8} 9; α(IPF)=8.58×10^{-7} 13
4366.82	9$^-$	758.8[#] 1	30[b] 3	3607.94	7$^-$				

$^{82}_{38}Sr_{44}$-8

Adopted Levels, Gammas (continued)

$\gamma(^{82}Sr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[c]	α[e]	Comments
4366.82	9⁻	801.11[#] *10*	100[b] *8*	3565.75	7⁻	(E2)	9.91×10⁻⁴	α(K)=0.000876 *13*; α(L)=9.65×10⁻⁵ *14*; α(M)=1.620×10⁻⁵ *23* α(N)=2.02×10⁻⁶ *3*; α(O)=1.293×10⁻⁷ *19*
		841.3[#] *3*	32[b] *4*	3525.75	7⁻			
4387.09	(9⁻)	876.0[#] *1*	100[b] *18*	3511.15	(7)⁻	(E2)	7.93×10⁻⁴	α(K)=0.000702 *10*; α(L)=7.69×10⁻⁵ *11*; α(M)=1.291×10⁻⁵ *18* α(N)=1.616×10⁻⁶ *23*; α(O)=1.037×10⁻⁷ *15*
		1144.20[#] *10*	88[b] *7*	3242.82	8⁺			
4423.85	10⁺	801.11[#] *10*	100 *12*	3622.78	8⁺	(E2)	9.91×10⁻⁴	B(E2)(W.u.)=78 *22* α(K)=0.000876 *13*; α(L)=9.65×10⁻⁵ *14*; α(M)=1.620×10⁻⁵ *23* α(N)=2.02×10⁻⁶ *3*; α(O)=1.293×10⁻⁷ *19*
		1180.98[#] *10*	16 *2*	3242.82	8⁺	[E2]	4.04×10⁻⁴	α(K)=0.000353 *5*; α(L)=3.82×10⁻⁵ *6*; α(M)=6.41×10⁻⁶ *9* α(N)=8.04×10⁻⁷ *12*; α(O)=5.23×10⁻⁸ *8*; α(IPF)=5.65×10⁻⁶ *8* B(E2)(W.u.)=1.8 *5*
4472.85	9⁻	907.0 *1*	62 *8*	3565.75	7⁻			
		947.2 *2*	44 *4*	3525.75	7⁻			
		1230.3 *2*	100 *8*	3242.82	8⁺			
4492.5	9⁺	1015.5 *3*	100	3476.96	7⁺			
4637.34	(10⁺)	213.5 *3*	10 *3*	4423.85	10⁺			
		287.0 *2*	38 *7*	4350.30	10⁺			
		951.2 *2*	100 *10*	3686.07	(8⁺)			
		1394.7 *3*	72 *10*	3242.82	8⁺			
4909.39	10⁻	521.7[@g]		4387.09	(9⁻)			
		875.9 *1*	100	4033.49	8⁻	E2[d]	7.94×10⁻⁴	B(E2)(W.u.)=1.4×10² *+4−5* α(K)=0.000702 *10*; α(L)=7.70×10⁻⁵ *11*; α(M)=1.292×10⁻⁵ *18* α(N)=1.616×10⁻⁶ *23*; α(O)=1.037×10⁻⁷ *15*
5237.4	10⁻	1094.8 *3*	100	4142.60	8⁻			
5308.15	11⁻	941.32[#] *10*	100	4366.82	9⁻	E2	6.67×10⁻⁴	α(K)=0.000590 *9*; α(L)=6.45×10⁻⁵ *9*; α(M)=1.082×10⁻⁵ *16* α(N)=1.356×10⁻⁶ *19*; α(O)=8.73×10⁻⁸ *13* B(E2)(W.u.)=1.2×10² *+3−4*
5333.8		1085.4[@]	100	4248.4				
5392.31?		1005.43[#g] *10*	100	4387.09	(9⁻)			
5427.12	12⁺	1003.26[#] *10*	100	4423.85	10⁺	E2	5.74×10⁻⁴	B(E2)(W.u.)=80 *+20−27* α(K)=0.000508 *8*; α(L)=5.54×10⁻⁵ *8*; α(M)=9.30×10⁻⁶ *13* α(N)=1.165×10⁻⁶ *17*; α(O)=7.53×10⁻⁸ *11*
5468.9		1045 *1*	100	4423.85	10⁺			
5479.09	(11⁻)	1006.2 *3*	100 *7*	4472.85	9⁻			
		1128.8 *3*	62 *4*	4350.30	10⁺			
5569.0	12⁺	1218.7 *3*	100	4350.30	10⁺	[E2]	3.83×10⁻⁴	α(K)=0.000330 *5*; α(L)=3.56×10⁻⁵ *5*; α(M)=5.98×10⁻⁶ *9* α(N)=7.51×10⁻⁷ *11*; α(O)=4.89×10⁻⁸ *7*; α(IPF)=1.093×10⁻⁵ *16*
5738.2	(12⁺)	1100.9 *4*	100	4637.34	(10⁺)			
5913.9	12⁻	1004.5 *3*	100	4909.39	10⁻	E2[d]	5.73×10⁻⁴	B(E2)(W.u.)=1.0×10² *+3−4*

$^{82}_{38}Sr_{44}$-9

γ(^{82}Sr) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[c]	α[e]	Comments
								α(K)=0.000507 *8*; α(L)=5.52×10^{-5} *8*; α(M)=9.27×10^{-6} *13* α(N)=1.162×10^{-6} *17*; α(O)=7.51×10^{-8} *11*
6367.2	13$^-$	1059.0 *2*	100	5308.15	11$^-$	E2	5.07×10^{-4}	α(K)=0.000449 *7*; α(L)=4.88×10^{-5} *7*; α(M)=8.20×10^{-6} *12* α(N)=1.028×10^{-6} *15*; α(O)=6.66×10^{-8} *10* B(E2)(W.u.)=1.3×10^2 *+6−8*
6450.1		1023 *1*	100	5427.12	12$^+$			
6543.6	14$^+$	1116.5 *3*	100	5427.12	12$^+$	E2[d]	4.52×10^{-4}	B(E2)(W.u.)=62 *+23−28* α(K)=0.000399 *6*; α(L)=4.33×10^{-5} *6*; α(M)=7.27×10^{-6} *11* α(N)=9.11×10^{-7} *13*; α(O)=5.91×10^{-8} *9*; α(IPF)=1.133×10^{-6} *19*
6556.4		1222.6[@]	100	5333.8				
6564.8	(13$^-$)	1085.7 *3*	100	5479.09	(11$^-$)			
6937.0	(14$^+$)	1368.0 *3*	100	5569.0	12$^+$	[E2]	3.35×10^{-4}	α(K)=0.000258 *4*; α(L)=2.78×10^{-5} *4*; α(M)=4.67×10^{-6} *7* α(N)=5.87×10^{-7} *9*; α(O)=3.84×10^{-8} *6*; α(IPF)=4.35×10^{-5} *7* B(E2)(W.u.)=1.4×10^2 *+42−8*
7066.5	14$^-$	1152.6 *3*	100	5913.9	12$^-$	E2[d]	4.23×10^{-4}	B(E2)(W.u.)=1.6×10^2 *+9−11* α(K)=0.000372 *6*; α(L)=4.03×10^{-5} *6*; α(M)=6.76×10^{-6} *10* α(N)=8.49×10^{-7} *12*; α(O)=5.52×10^{-8} *8*; α(IPF)=3.01×10^{-6} *5*
7534.6		991 *1*	100	6543.6	14$^+$			
7545.5	15$^-$	1178.3 *3*	100	6367.2	13$^-$	E2[d]	4.06×10^{-4}	B(E2)(W.u.)=1.0×10^2 *4* α(K)=0.000354 *5*; α(L)=3.84×10^{-5} *6*; α(M)=6.44×10^{-6} *9* α(N)=8.08×10^{-7} *12*; α(O)=5.26×10^{-8} *8*; α(IPF)=5.35×10^{-6} *9*
7788.2	(15$^-$)	1223.4 *3*	100	6564.8	(13$^-$)			
7812.0	16$^+$	1268.4 *4*	100	6543.6	14$^+$	E2[d]	3.62×10^{-4}	B(E2)(W.u.)=9.E+1 *+4−5* α(K)=0.000303 *5*; α(L)=3.27×10^{-5} *5*; α(M)=5.48×10^{-6} *8* α(N)=6.89×10^{-7} *10*; α(O)=4.49×10^{-8} *7*; α(IPF)=2.04×10^{-5} *3*
7936.1		1379.6[@]	100	6556.4				
8377.6	16$^-$	1311.1 *4*	100	7066.5	14$^-$	E2[d]	3.48×10^{-4}	B(E2)(W.u.)=49 *22* α(K)=0.000282 *4*; α(L)=3.05×10^{-5} *5*; α(M)=5.11×10^{-6} *8* α(N)=6.42×10^{-7} *9*; α(O)=4.19×10^{-8} *6*; α(IPF)=2.98×10^{-5} *5*
8434.6	(16$^+$)	1497.6 *3*	100	6937.0	(14$^+$)	E2[d]	3.26×10^{-4}	α(K)=0.000215 *3*; α(L)=2.31×10^{-5} *4*; α(M)=3.88×10^{-6} *6* α(N)=4.87×10^{-7} *7*; α(O)=3.19×10^{-8} *5*; α(IPF)=8.35×10^{-5} *12* B(E2)(W.u.)>20
8842.0	17$^-$	1296.5 *5*	100	7545.5	15$^-$	E2[d]	3.53×10^{-4}	B(E2)(W.u.)=9.E+1 *7* α(K)=0.000289 *4*; α(L)=3.12×10^{-5} *5*; α(M)=5.23×10^{-6} *8* α(N)=6.57×10^{-7} *10*; α(O)=4.29×10^{-8} *6*; α(IPF)=2.65×10^{-5} *4*
9167.4	(17$^-$)	1379.2 *4*	100	7788.2	(15$^-$)			
9237.8	18$^+$	1425.7 *4*	100	7812.0	16$^+$	[E2]	3.27×10^{-4}	B(E2)(W.u.)=9.E+1 *+36−5* α(K)=0.000237 *4*; α(L)=2.56×10^{-5} *4*; α(M)=4.29×10^{-6} *6* α(N)=5.39×10^{-7} *8*; α(O)=3.52×10^{-8} *5*; α(IPF)=5.93×10^{-5} *9*

$^{82}_{38}$Sr$_{44}$-10

$\gamma(^{82}Sr)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[&]	E_f	J^π_f	Mult.[c]	α[e]	Comments
9478.1		1542[@]	100	7936.1				
9842.6	(18⁻)	1465 *1*	100	8377.6	16⁻	[E2]	3.25×10^{-4}	α(K)=0.000225 *4*; α(L)=2.42×10^{-5} *4*; α(M)=4.05×10^{-6} *6* α(N)=5.10×10^{-7} *8*; α(O)=3.34×10^{-8} *5*; α(IPF)=7.19×10^{-5} *11* B(E2)(W.u.)>21
10061.6	(18⁺)	1626.9[@]	100	8434.6	(16⁺)			
10258.8	(19⁻)	1416.8 *5*	100	8842.0	17⁻	[E2]	3.28×10^{-4}	B(E2)(W.u.)=6.E+1 *+3−5* α(K)=0.000240 *4*; α(L)=2.59×10^{-5} *4*; α(M)=4.34×10^{-6} *6* α(N)=5.46×10^{-7} *8*; α(O)=3.57×10^{-8} *5*; α(IPF)=5.67×10^{-5} *8*
10709.4	(19⁻)	1542 *1*	100	9167.4	(17⁻)			
10872.4	(20⁺)	1634.6 *5*	100	9237.8	18⁺	[E2]	3.44×10^{-4}	α(K)=0.000181 *3*; α(L)=1.94×10^{-5} *3*; α(M)=3.25×10^{-6} *5* α(N)=4.09×10^{-7} *6*; α(O)=2.69×10^{-8} *4*; α(IPF)=0.0001396 *20* B(E2)(W.u.)>11
11379.6	(20⁻)	1537 *1*	100	9842.6	(18⁻)			
11798.4	(21⁻)	1539.6 *5*	100	10258.8	(19⁻)	[E2]	3.29×10^{-4}	α(K)=0.000204 *3*; α(L)=2.19×10^{-5} *3*; α(M)=3.67×10^{-6} *6* α(N)=4.61×10^{-7} *7*; α(O)=3.02×10^{-8} *5*; α(IPF)=9.96×10^{-5} *14* B(E2)(W.u.)>51
11837.6?	(20⁺)	1776[@]	100	10061.6	(18⁺)			
12758.8	(22⁺)	1886.4[@]	100	10872.4	(20⁺)			
13005.7	(22⁻)	1626 *1*	100	11379.6	(20⁻)			
13489.4	(23⁻)	1691 *1*	100	11798.4	(21⁻)			
14832.7?	(24)	1827[@]	100	13005.7	(22⁻)			
14910.8	(24⁺)	2152[@]	100	12758.8	(22⁺)			
15409.4	(25)	1920[@]	100	13489.4	(23⁻)			
17246.9?	(26⁻)	2336[@]	100	14910.8	(24⁺)			
17616.5	(27)	2207[@]	100	15409.4	(25)			
1432.0+x	J+2	1432 *1*	100[a]	x	J			
3027.0+x	J+4	1595 *1*	100[a]	1432.0+x	J+2			
4783.0+x	J+6	1756 *1*	100[a]	3027.0+x	J+4			
6703.1+x	J+8	1920 *1*	100[a]	4783.0+x	J+6			
8780.1+x	J+10	2077 *1*	100[a]	6703.1+x	J+8			
11010.1+x	J+12	2230 *1*	100[a]	8780.1+x	J+10			
13393+x	J+14	2383 *1*	100[a]	11010.1+x	J+12			
15938+x	J+16	2545 *1*	100[a]	13393+x	J+14			
18674+x?	J+18	2736[g]	100[a]	15938+x	J+16			

[†] From ^{56}Fe(^{29}Si,2pnγ), unless otherwise stated. For SD band, values are from ^{58}Ni(^{30}Si,α2pγ),(^{28}Si,4pγ):SD.
[‡] From ^{82}Y β^+ decay.

$^{82}_{38}Sr_{44}$-11

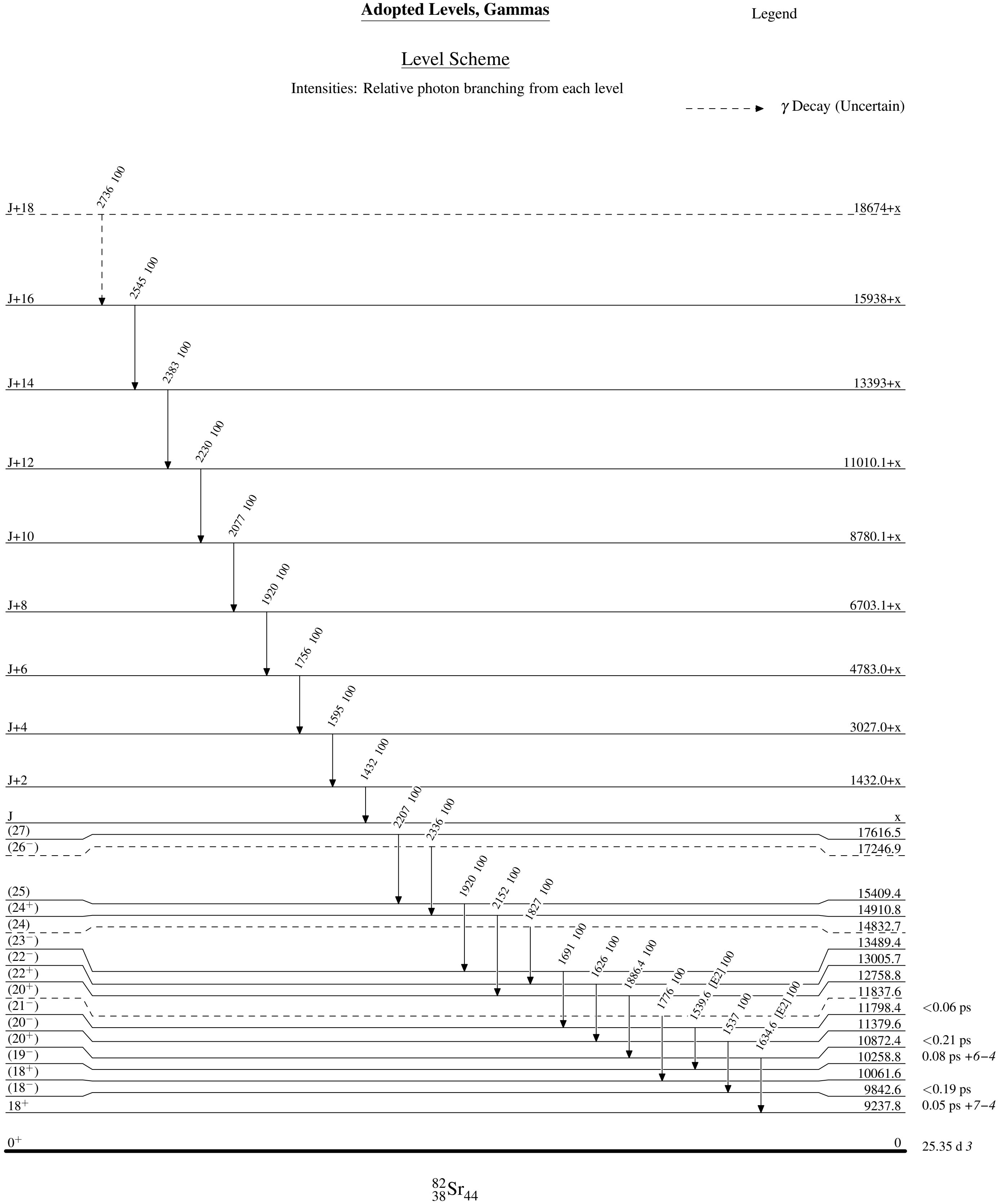
$\gamma(^{82}Sr)$ (continued)

[#] From $^{70}Ge(^{16}O,2n2p\gamma)$.
[@] From $^{52}Cr(^{34}S,2p2n\gamma)$.
[&] γ branching from each level deduced from $(^{29}Si,2pn\gamma)$, except as noted otherwise.
[a] Relative intensity within the SD band.
[b] From $^{70}Ge(^{16}O,2n2p\gamma)$.
[c] From $\gamma(\theta)$ and linear polarization observed in $(^{16}O,2n2p\gamma)$, except as noted otherwise.
[d] From DCO ratios obtained in $^{56}Fe(^{29}Si,2pn\gamma)$ and RUL.
[e] Additional information 2.
[f] If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
[g] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

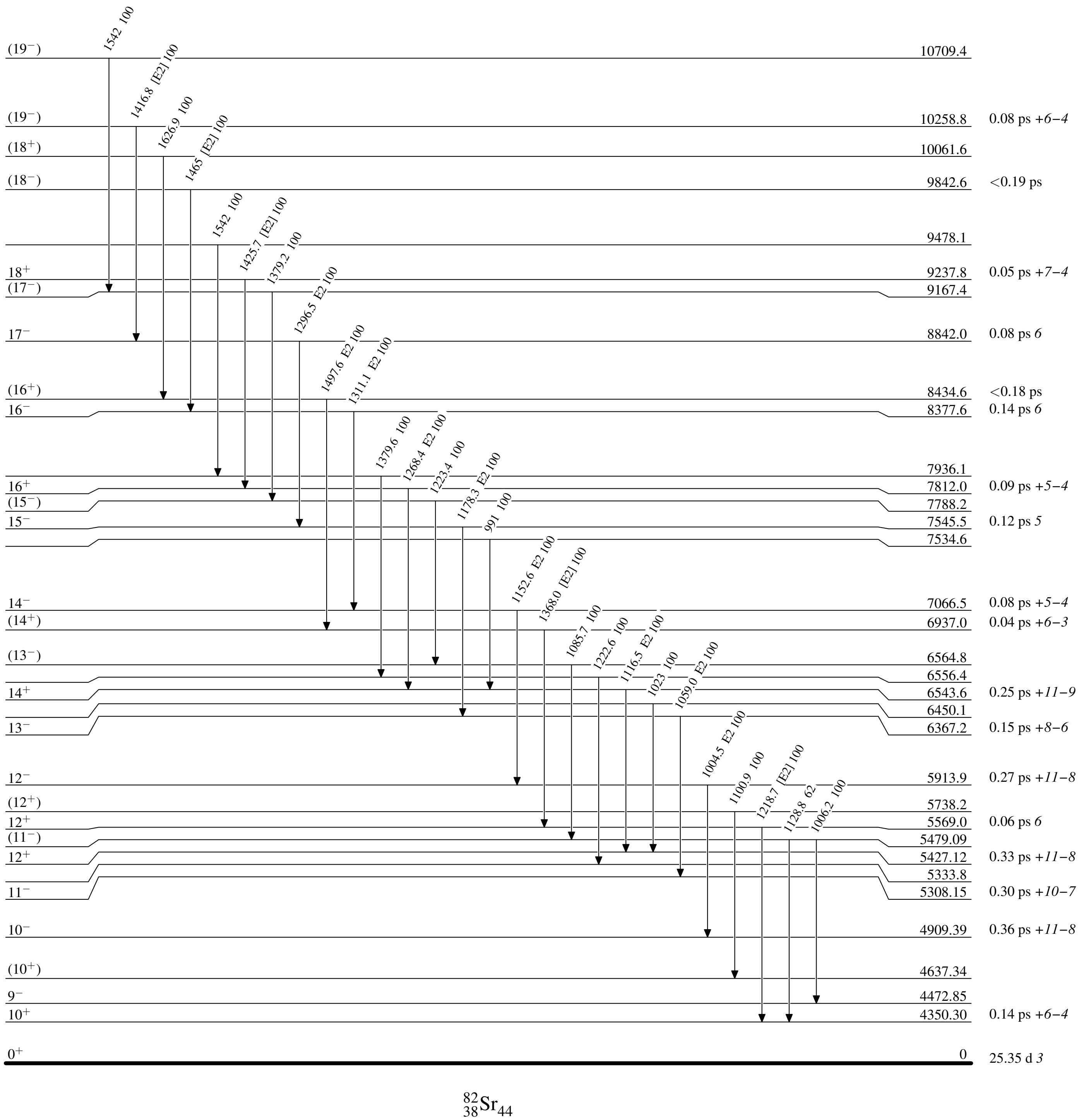
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

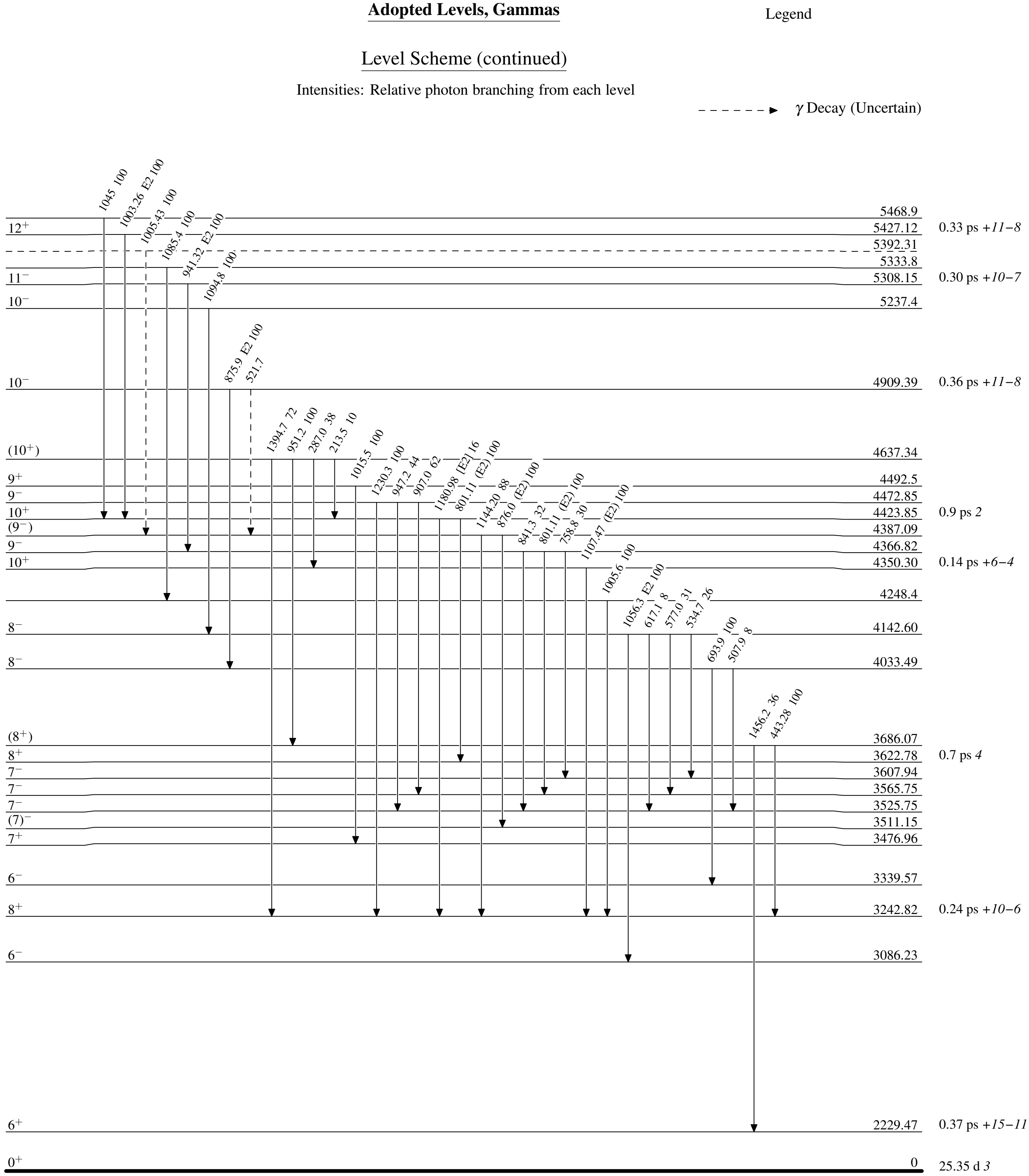
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



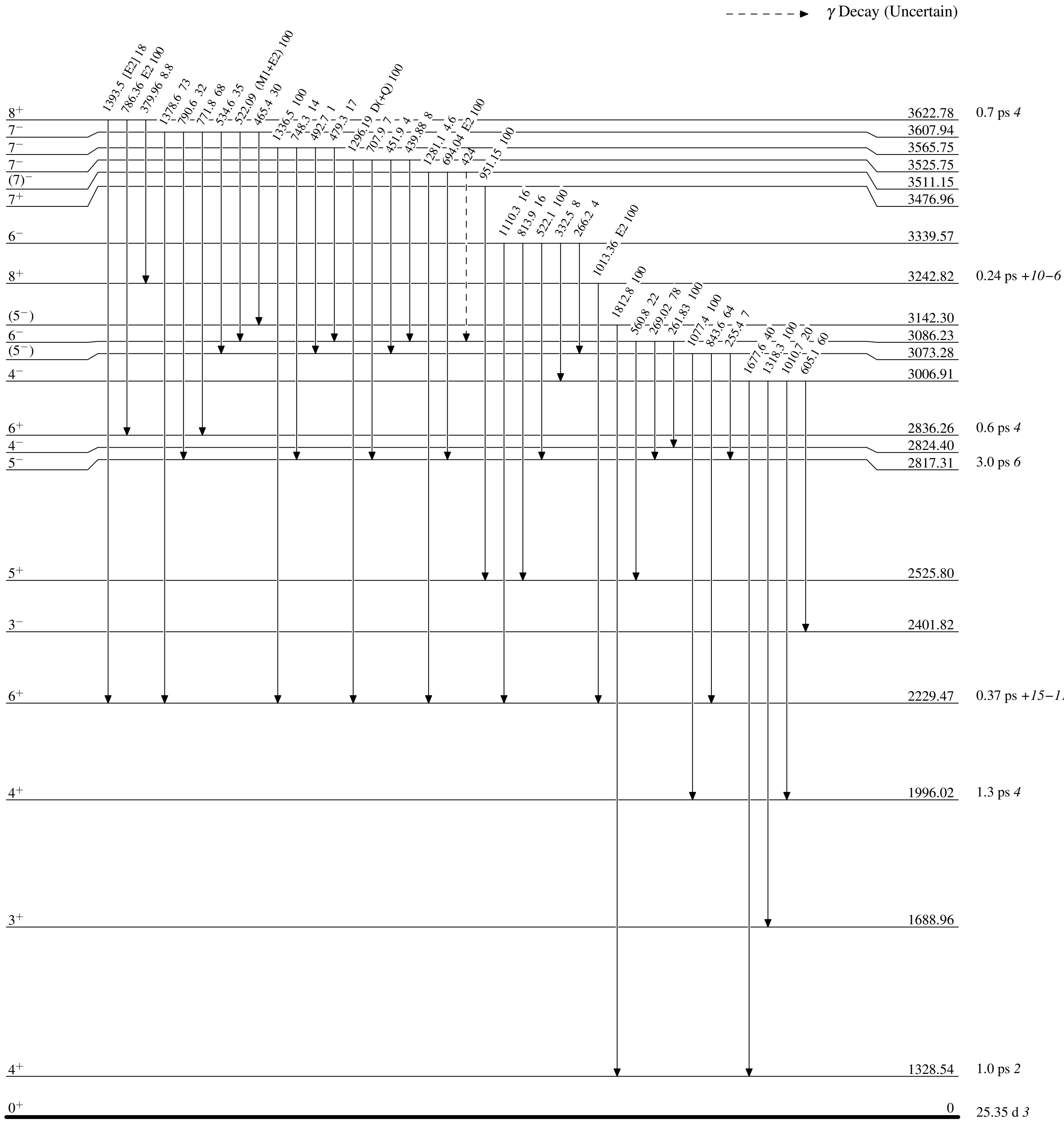
$^{82}_{38}Sr_{44}$

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

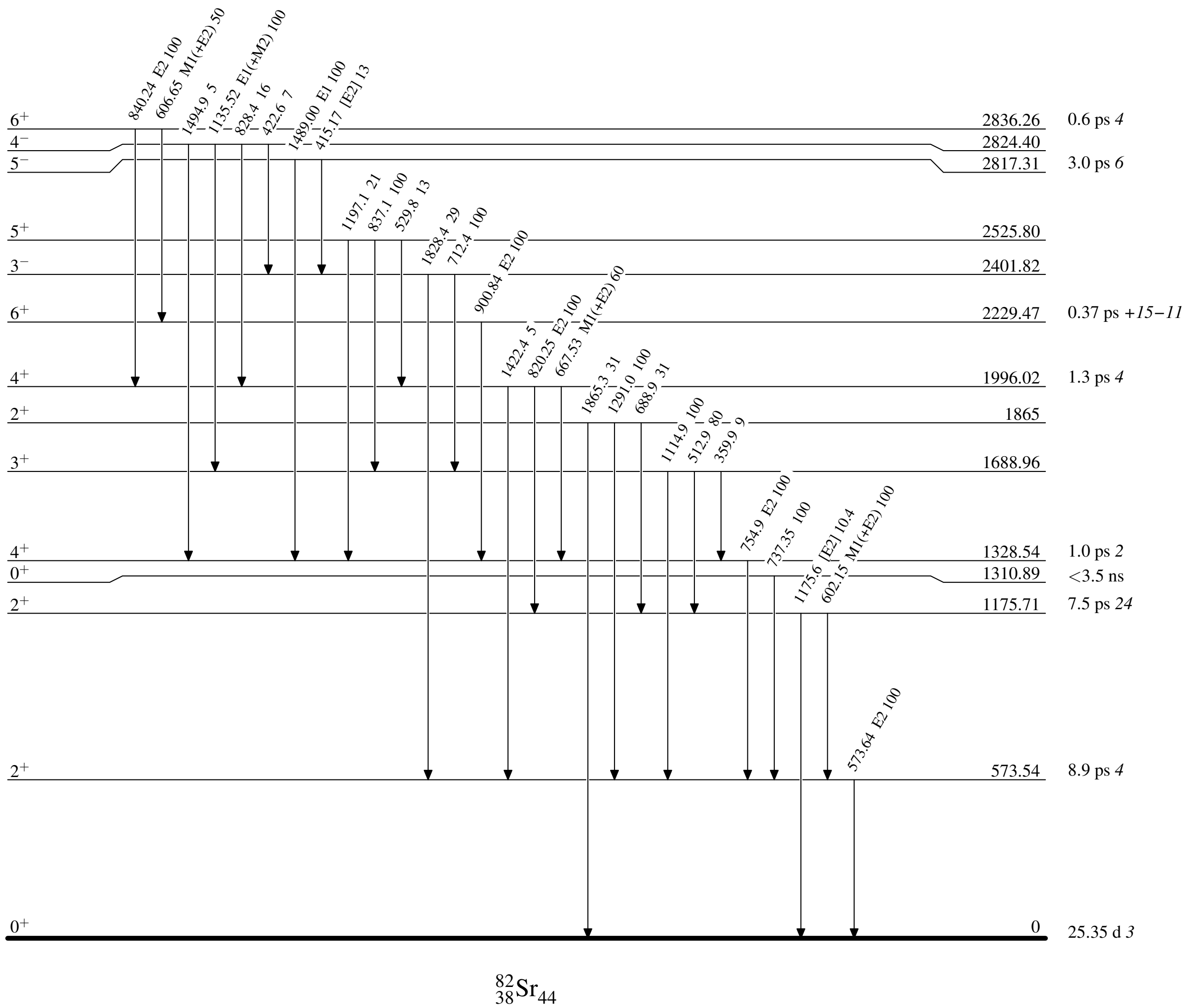


$^{82}_{38}Sr_{44}$

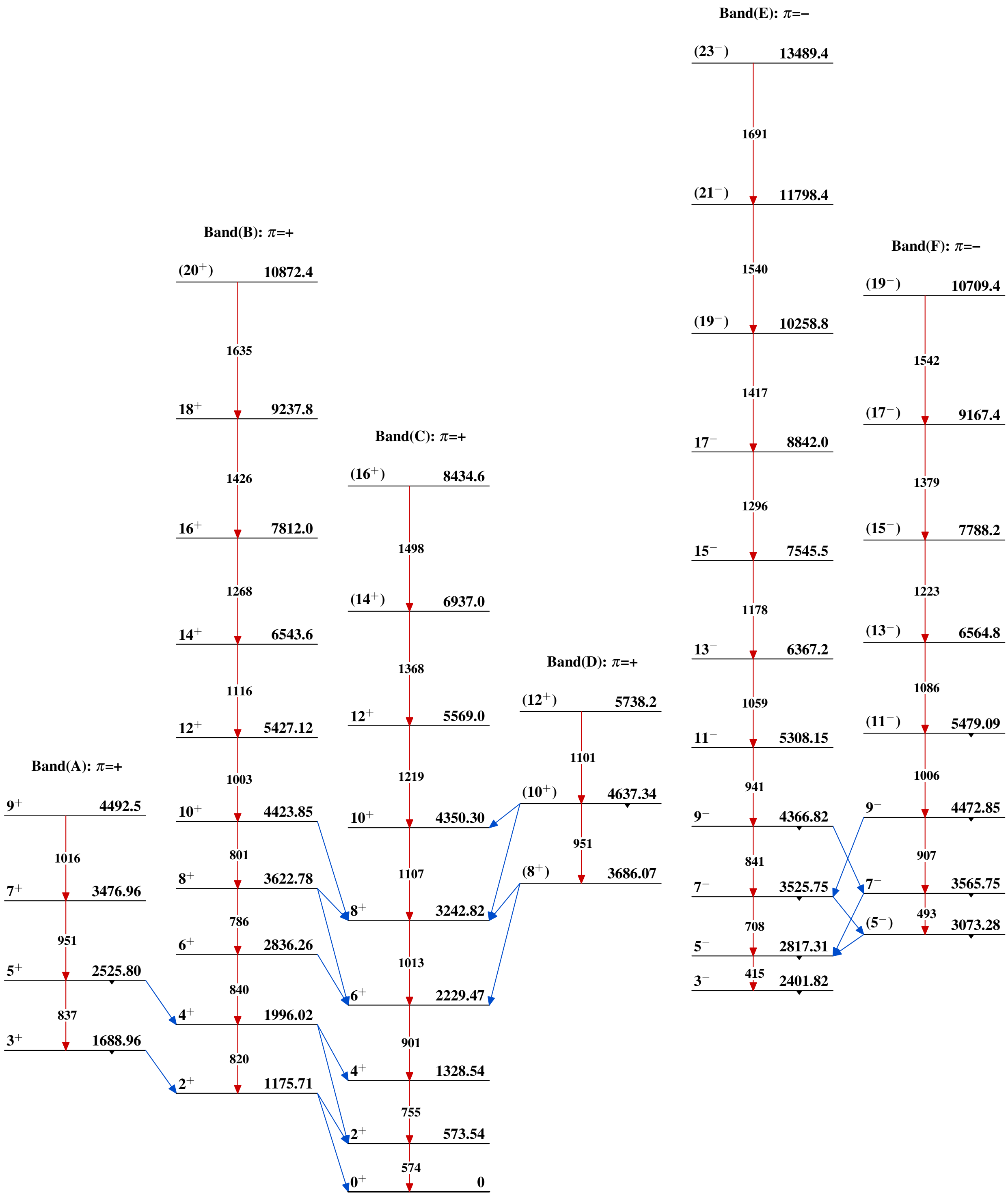
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

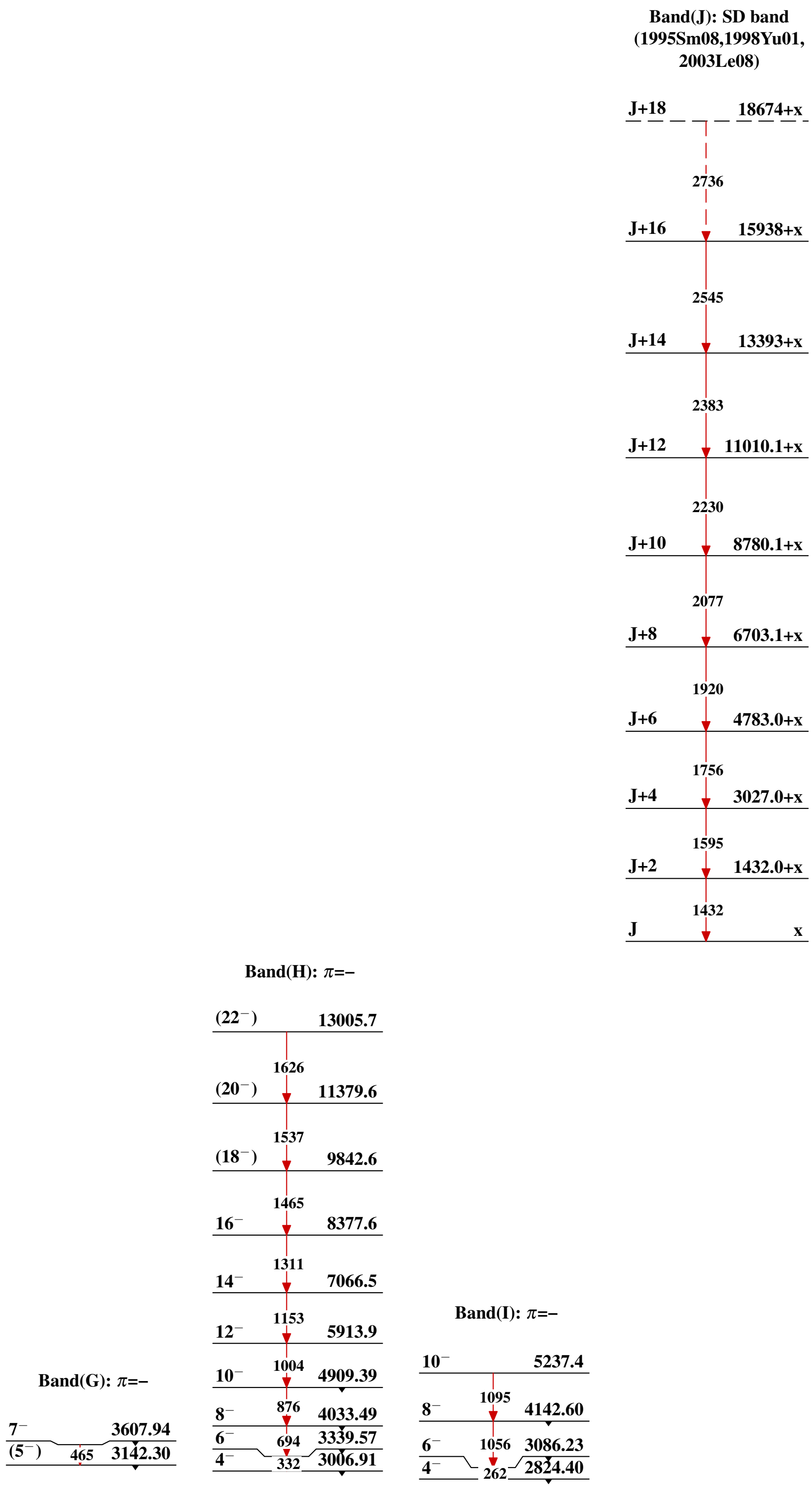


Adopted Levels, Gammas



$^{82}_{38}Sr_{44}$

Adopted Levels, Gammas (continued)



$^{82}_{38}Sr_{44}$