^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty	NDS 197,1 (2024)	31-May-2024

2000Gr19: ^{29}Si(p,γ), Target: 95% enriched Si; Projectile: p, E=1.0-2.5 MeV; γ-rays measured with two HPGe detectors (one Compton-suppressed), suppressed detector at 90° and unsuppressed was rotated: 25°, 38°, 50°, 63° and 90°; one silicon surface-barrier and one NaI detectors at 165° and 140°, respectively, was used to measure excitation functions to locate the resonances; Deduced γ-ray branching, mixing ratio, summarized level excitation energies, J^π and isospin from all of their group studies: 1983Ne04, 1992Fr10, 1996Wa33 and 1997Va02.

1985Re02: ^{29}Si(p,γ), Target: SiO_2 enriched to 95% in ^{29}Si; Projectile: p, E=0.3-2.3 MeV; γ-rays measured by two Ge(Li) detectors; deduced level excitation energies, γ-ray branching, mean lifetime of the levels, γ-ray angular distribution coefficients, J^π.

1983Ne04: ^{29}Si(p,p),^{29}Si(p,pγ); Target: 95% enriched ^{29}Si; Projectile: proton, E=1.29-3.31, 2.40-3.31 and 3.09-3.31 MeV; Si detectors at 90°, 105°, 135° and 160° detected scattered protons; deduced 66 resonance levels, L values, Γp and Γp_1.

1969Ha50: ^{29}Si(p,γ); Target: SiO_2 enriched to 95% in ^{29}Si; Projectile: p, E=0.3-1.8 MeV; NaI(Tl) and Ge(Li) detectors; Measured: Eγ, γ-ray branching, p-$\gamma\gamma$ coin, mean lifetime, δ, γ-ray linear polarization, deduced level scheme, γ-ray multipolarity, J^π.

Others:

2022Do04: ^{29}Si(p,γ) E < 250 keV and E > 300 keV.
1997Va02: ^{29}Si(p,γ) E=1.00-1.75 MeV.
1996Wa33: ^{29}Si(p,γ) E=1.75-2.51 MeV.
1996Bb22: ^{29}Si(p,γ) E 324 keV.
1996Pi15: ^{29}Si(p,γ) E=325, 420 keV.
1995Sh54: ^{29}Si(p,γ) E=2.4866 MeV.
1993Ca07: ^{29}Si(p,γ) E=2.0-3.0 MeV.
1992Fr10: ^{29}Si(p,γ), ^{29}Si(p,pγ) E=2.025-3.310 MeV.
1987Ti03: ^{29}Si(p,γ) E=1.4-2.1 MeV.
1983Ne04: ^{29}Si(p,p),^{29}Si(p,pγ) E=1.29-3.31, 2.40-3.31 and 3.09-3.31 MeV.
1980An07: ^{29}Si(p,γ) E=0.73, 1.75 MeV.
1974Ku12: ^{29}Si(p,γ) E=0.70-0.75 MeV.
1973He16: ^{29}Si(p,γ) E=2.5-3.4 MeV.
1972Lu04: ^{29}Si(p,γ) E=1.47-1.75 MeV.
1971Bi09: ^{29}Si(p,γ) E=731, 1506, 1686, 1748, 1772 keV.
1971Di21: ^{29}Si(p,γ) E=0.9-2.12 MeV.
1970La15: ^{29}Si(p,γ) E=1.5-1.8 MeV.
1969Bi11: ^{29}Si(p,γ) E=1.748 MeV.
1967Ha15: ^{29}Si(p,γ) E=0.7-1.75 MeV.
1967Ha26: ^{29}Si(p,γ) E=1.375 MeV.
1966En04: ^{29}Si(p,γ) E=0.3-2.1 MeV.
1966Ha27: ^{29}Si(p,γ) E=1.505 MeV.
1965Ph03: ^{29}Si(p,γ) E=1.420-2.160 MeV.
1964Ej01: ^{29}Si(p,γ) E=1-1.4 MeV.
1962Ba20: ^{29}Si(p,γ).
1961Oh01: ^{29}Si(p,γ) E=300-1700 keV.
1960Se11: ^{29}Si(p,γ) E=300-1840 keV.
1958Va12: ^{29}Si(p,γ) E=0.2-0.8 MeV.

1986Ka34: ^{27}Al(α,n) E=4.2 MeV; measured Eγ, Iγ. Deduced M1 transition strengths.
1982Qa02: ^{27}Al(α,n) E=10-30 MeV.
1978Fl07: ^{27}Al(α,n) E=2.8-6.8 MeV.
1978Gr15: ^{27}Al(α,n) E=10-18 MeV.
1977Ra01: ^{27}Al(α,nγ) E=6.2 MeV.
1973An01: ^{27}Al(α,nγ) E=5.5 MeV.

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1972Sn01: ^{27}Al(α,nγ) E=6.4 MeV.
1971He02: ^{27}Al(α,nγ) E=7-15 MeV.
1970Ha52: ^{27}Al(α,nγ) E=8.5 MeV.
1967Ke09: ^{27}Al(α,nγ) E=4 MeV.
1960Ya05: ^{27}Al(α,n) E=8.15 MeV.

2000Gr19, 1997Va02, 1996Wa33, 1992Fr10 and 1983Ne04 – from the same group/center; 1992Fr10 E_p data is consistently lower than those in 1983Ne04 by about 7 keV.
1969Ha50 and 1967Ha15 – from the same group.

^{30}P Levels

E(level)[†]	Jπ[c]	$T_{1/2}$[d]	Comments
0	1+		
677.01 *3*	0+	93 fs *10*	$T_{1/2}$: weighted average of 90 fs *10* (1985Re02), 90 fs *14* (1987Ti03), 107 fs *21* (1967Ke09), and 111 fs *31* (1971Sh11). Others: 118 fs *+152−55* (1972Lu04).
708.70 *3*	1+	37 ps *3*	$T_{1/2}$: weighted average of 38 ps *5* (1970Ha52), 37 ps *7* (1972Sn01), and 37 ps *4* (1973An01). Others: ≥3 ps (1967Ke09), ≥0.8 ps (1970La15).
1454.23 *2*	2+	5.3 ps *11*	$T_{1/2}$: unweighted average of 4.16 ps *16* (1977Ra01 – τ=6.01 ps *23*) and 6.4 ps *3* (1971He02). Others: ≥1 ps (1985Re02), ≥166 ps (1969Ha50), ≥0.45 ps (1972Lu04).
1973.27 *4*	3+	2.17 ps *24*	$T_{1/2}$: from 1977Ra01 (τ=3.13 ps *35*). Others: 4.7 ps *3* (1971He02), >1 ps (1985Re02), ≥166 ps (1969Ha50), ≥0.5 ps (1971Bi09), 0.3 ps *+30−2* (1970La15).
2538.95 *5*	3+	151 fs *14*	$T_{1/2}$: weighted average of 139 fs *21* (1987Ti03) and 156 fs *14* (1971Sh11). Others: 64 fs *15* (1969Ha50), 55 fs *17* (1972Lu04).
2723.72 *7*	2+	110 fs *10*	$T_{1/2}$: weighted average of 111 fs *10* (1985Re02), 121 fs *24* (1971Sh11), and 102 fs *15* (1971Bi09). Other: 67 fs *10* (1969Ha50).
2839.34 *4*	3+	570 fs *130*	$T_{1/2}$: weighted average of 499 fs *139* (1985Re02), 423 fs *125* (1987Ti03), and 832 fs *139* (1971Sh11). Other: ≥159 fs (from 1972Lu04).
2937.46 *2*	2+	49 fs *3*	$T_{1/2}$: weighted average of 45 fs *3* (1985Re02), 60 fs *9* (1987Ti03), 66 fs *10* (1971Sh11), 55 fs *10* (1969Bi11), and 49 fs *7*(1971Bi09). Others: 26 fs *3* (1969Ha50), 33 fs *5* (1972Lu04), 69 fs *+29−21* (1970La15).
3019.2 *1*	1+	2 fs *1*	$T_{1/2}$: Others: <7 fs (1985Re02), <21 fs (1971Sh11), <8 fs (1972Lu04), <20 fs (1971Bi09), < 10 fs (1970La15).
3733.80 *7*	1+	27 fs *5*	$T_{1/2}$: weighted average of 26 fs *5* (1987Ti03) and 38 fs *24* (1972No02).
3835.80 *5*	2+	32 fs *6*	$T_{1/2}$: weighted average of 31 fs *6* (1985Re02), 36 fs *6* (1987Ti03), and 22 fs *10* (1972No02).
3928.61 *5*	3+	79 fs *14*	$T_{1/2}$: weighted average of 60 fs *21* (1985Re02), 87 fs *14* (1972No02).
4143.63 *6*	2−	25 fs *2*	$T_{1/2}$: weighted average of 26 fs *3* (1985Re02), 38 fs *6* (1987Ti03), 40 fs *10* (1969Ha50), 22 fs *2* (1972Lu04), 17 fs *6* (1971Bi09), and 28 fs *4* (1970La15).
4182.81 *6*	2+	2.2 fs *6*	$T_{1/2}$: weighted average of 2.4 fs *8* (1987Ti03) and 2.1 fs *6* (1980An07). Others: 7 fs *2* (1985Re02), <14 fs (1971Bi09), <10 fs (1970La15).
4231.97 *9*	4−	1.3 ps *7*	E(level): 1972No02 reported doublet for this energy levels as 4229.9 keV *13* and 4234.5 keV *18* with half lives 513 fs *62* and 28 fs *21*, respectively. In the absence of firm evidence, the evaluators considered it to be a single energy level. $T_{1/2}$: others: 1.4 ps *+21−6* (1970La15), >0.7 ps (1985Re02), ≥0.8 ps (1969Ha50), >1.5 ps (1972Lu04), >0.9 ps (1971Bi09).
4298.6 *2*	4+	100 fs *18*	$T_{1/2}$: weighted average of 95 fs *18* (1987Ti03) and 125 fs *42* (1972No02).
4343.8 *1*	5+	123 fs *11*	$T_{1/2}$: weighted average of 101 fs *21* (1987Ti03) and 128 fs *10* (1972No02).
4422.8 *1*	2+	30 fs *4*	$T_{1/2}$: weighted average of 26 fs *3* (1985Re02), 38 fs *6* (1987Ti03), 44 fs *6* (1969Ha50), and 28 fs *5* (1971Bi09). Other: 13.2 fs *55* (1972Lu04),
4468.33[a] *7*	0+	1.9 fs *3*	$T_{1/2}$: others: <7 fs (1985Re02), ≤23 fs (1969Ha50).
4502.21 *9*	1+	4.1 fs *15*	$T_{1/2}$: weighted average of 4.4 fs *15* (1987Ti03) and 3.5 fs *21* (1972Lu04). Others: <7 fs (1985Re02), <33 fs (1970La15).
4625.92 *8*	3−	172 fs *14*	$T_{1/2}$: weighted average of 236 fs *28* (1985Re02), 180 fs *31* (1987Ti03), 180 fs *42* (1969Ha50), 152 fs *14* (1972No02), 166 fs *28* (1972Lu04), and 194 fs *42* (1971Bi09). Other: 159 fs *+74−43* (1970La15).
4736.03 *8*	3+	51 fs *7*	$T_{1/2}$: weighted average of 49 fs *7* (1985Re02) and 53 fs *8* (1987Ti03).

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[c]	$T_{1/2}$[d]	S[f]	Comments
4926.0 *2*	3^-	260 ps *35*		Jπ: $(5)^-$ in 1969Ha50. E(level): weighted average of 4926.4(2) (1985Re02) and 4925.5(2) (2000Gr19). Jπ: γ decay to 2^+ level rules out the possibility for 5^- assignment as mentioned in 2000Gr19 based on experimental observation. E(level): Other: 4921 in 1972Lu04. $T_{1/2}$: from τ=375 ps *50* (1978Ba76 (RDM),1990En08). Others: >0.8 ps (1972Lu04), >0.6 ps (1971Bi09), ≥0.6 ps (1969Ha50). T=0.
4937.3 *2*	1	4.6 fs *14*		Jπ: from γ(θ) in 1969Ha50 (p,γ). Other: $(1,2^+)$ in 2000Gr19. $T_{1/2}$: other: <7 fs (1985Re02).
4941.2 *3*	1^+	4.3 fs *11*		E(level): weighted average of 4941.0(3) (1985Re02) and 4941.4(3) (2000Gr19). $T_{1/2}$: Others: <7 fs (1985Re02), 33 fs *14* (1969Ha50). T=0.
5206.8 *1*	3^+	15 fs *4*		$T_{1/2}$: weighted average of 12 fs *3* (1985Re02) and 21 fs *4* (1987Ti03). T=0.
5230.1 *3*	$(2,4)^-$			
5411.1[b] *3*	2^-			
5506.3 *2*	1^-	3.8 fs *9*		T=0 E(level): weighted average of 5506.1(2) (1985Re02) and 5506.4(2) (2000Gr19). $T_{1/2}$: Other: <7 fs (1985Re02).
5508.55 *8*	3^+	10 fs *5*		
5576.3 *1*	2^+	6 fs *1*		
5701.3 *2*	1^+	11 fs *3*		T=0 $T_{1/2}$: other: <7 fs (1985Re02).
5896.7 *10*	$(1,2)^+$			E(level): from 2022Do04. E_r(c.m.)=303.4 keV *10*, ωγ=8.8×10^{-5} eV *15* (2022Do04). Resonance energy E_r(c.m.) is deduced from E(level)-Q(p,γ) in 2022Do04, with Q(p,γ)=5593.34 *7* deduced by the authors of 2022Do04 using nuclear masses. S(p)(^{30}P)=5594.75 *7* from 2021Wa16 (AME2020). Resonance strength ωγ given is extracted from the measured γ-ray yields (2022Do04). Jπ: from 2022Do04.
5907.5 *6*	$(1,2,3^+)$			E(level): from 2022Do04. Jπ: from 2022Do04. Other: 2000Gr19 adopted 2^- assignment. E_r(c.m.)=314.2 keV *6*, ωγ=0.0207 eV *27* (2022Do04). Resonance energy E_r(c.m.) is deduced from E(level)-Q(p,γ) in 2022Do04, with Q(p,γ)=5593.34 *7* deduced by in 2022Do04 using nuclear masses. S(p)(^{30}P)=5594.75 *7* from 2021Wa16 (AME2020). Resonance strength ωγ given is extracted from the measured γ-ray yields (2022Do04). Jπ: from 2022Do04.
5934.0[b] *1*	3^+			T=0
5996.2 *6*	$(1,2^+)$			Jπ: from 2022Do04. E_r(c.m.)=402.9 keV *6* (2022Do04). Resonance energy E_r(c.m.) is deduced from E(level)-Q(p,γ) by 2022Do04, with Q(p,γ)=5593.34 *7* deduced by the authors of 2022Do04 using nuclear masses. S(p)(^{30}P)=5594.75 *7* from 2021Wa16 (AME2020).
6006.0[b] *1*	3^+			
6093.5[b] *1*	3^-	4.4 fs *10*		T=1
6229.0[b] *3*	$(5)^+$			
6268.7 *4*	2^-		1.3 *3*	T=1 E_p=698.6 keV *7*.
6299.3 *2*	3^+		0.49 *10*	E_p=729.3 keV *4*; T=0.
6481.6 *5*	1^+		0.44 *9*	E_p=917.7 keV *4*.

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[c]	T1/2[d]	L[e]	S[f]	Comments
6520.8 *5*	2+			0.20 *4*	T=0 Ep=957.1 keV *4*.
6597.7[#] *5*	(3,4+,5+)				Ep=1037.9 keV *6*; T=1.
6667.8[#] *5*	3+			0.18 *4*	Ep=1110.4 keV *5*; T=0. S: other: 0.31 *6* (1969Ha50).
6853.9[#] *5*	1+	25 eV	0	1.6 *3*	Ep=1302.9 keV *5*; T=0; Γγ=0.54 eV.
6873.4[#] *5*	3+	3 eV	2	0.7 *3*	Ep=1323.1 keV *5*; T=0; Γγ=0.10 eV.
6877[#] *1*	2−	3.1 keV	1	2.4 *9*	Ep=1327 keV *1*; Γγ=0.48 eV.
6921[#] *1*	1−	5.4 keV	1	3.4 *9*	Ep=1372 keV *1*; T=0; Γγ=1.13 eV. S: other: 5.9 *12* (1969Ha50). E(level): 6926 in 1967Ha26.
6978.3[#] *5*	(3,4)+				Ep=1431.6 keV *5*; T=0.
7014.9[#] *5*	2−	0.70 keV	1	0.9 *2*	Ep=1469.5 keV *5*; T=0; Γγ=0.18 eV.
7045.0[#] *5*	4−	20 eV	3	0.09 *3*	Ep=1500.6 keV *5*; T=0; Γγ=0.02 eV.
7049.4[#] *5*	4−	45 eV	3	2.8 *5*	Ep=1505.2 keV *5*; T=1; Γγ=0.31 eV. S: other: 7.4 *15* (1969Ha50).
7119.1[#] *5*	(1+,2,3)				Ep=1577.3 keV *5*; T=0.
7178[#] *3*	1−	15 keV	1	4.0 *12*	Ep=1639 keV *3*; T=1; Γγ=1.33 eV. S: other: 21 *4* (1969Ha50).
7203.0[#] *5*	2+	30 eV	2	0.9 *2*	Ep=1664.1 keV *5*; T=0; Γγ=0.18 eV.
7207.5[#] *5*	0+	50 eV	0	0.47 *9*	Ep=1668.8 keV *5*; T=1; Γγ=0.16 eV. S: other: 0.88 *18* (1969Ha50).
7223.3 *5*	2−	4.5 keV	1	5.5 *14*	Ep=1685.7 keV *4* (1985Re02); T=1; Γγ=1.10 eV. S: other: 16 *3* (1969Ha50).
7282.0[#] *5*	3+	1 eV		1.9 *7*	Ep=1745.8 keV *5*; lp=(3) not consistent with parity; T=0; Γγ=0.37.
7283.4[#] *5*	2+	7 eV	2	4.7 *14*	Ep=1747.3 keV *5*; T=1; Γγ=0.50 eV.
7304.9[@] *5*	2−	60 eV	1	0.8 *3*	Ep=1769.5 keV *5*; T=0; Γγ=0.16 eV.
7306.3[@] *5*	2−	45 eV	3	0.7 *3*	Ep=1771.0 keV *5*; T=0; Γγ=0.14 eV. S: other: 1.6 *3* (1969Ha50).
7322[@] *3*	1−	16.5 keV	1	≈1	Ep=1787 keV *3*; T=1.
7383.4[@] *5*	(2+,3−)			0.38 *10*	Ep=1850.7 keV *5*; T=1.
7493[@] *1*	1+	3.5 keV	0	1.3 *3*	Ep=1964 keV *1*; T=1; Γγ=0.43 eV.
7560.5[@] *5*	3+	40 eV	2	0.60 *10*	Ep=2034.0 keV *5*; T=0; Γγ=0.09 eV.
7562.5[@] *5*	2+	25 eV	2	1.8 *3*	Ep=2036.0 keV *5*; T=1; Γγ=0.37 eV.
7579.9[@] *5*	2−	0.17 keV	3	0.46 *17*	Ep=2054.0 keV *5*; T=0; Γγ=0.09 eV.
7605.0[@] *5*	2+	0.26 keV	2	3.2 *5*	Ep=2080.0 keV *5*; T=1; Γp1=0.015 keV, Γγ=0.48 eV.
7636.0[@] *5*	3+	<3 eV		1.7 *3*	Ep=2112.1 keV *5*; T=(0); Γγ<0.26 eV.
7644.3[@] *5*	3+	65 eV	2	3.2 *5*	Ep=2120.7 keV *5*; T=0; Γγ=0.46 eV.
7688.2[@] *5*	4−	<3 eV		0.26 *10*	Ep=2166.1 keV *5*; T=0; Γγ<0.04 eV.
7742[‡] *3*	1−	52 keV	1		Ep=2222 keV *3*.
7749.3[@] *5*	1+	0.53 keV	0	1.1 *4*	Ep=2229.3 keV *5*; T=0; Γp1=0.040 keV, Γγ=0.38 eV.
7752.7[@] *5*	3+	<3 eV		0.20 *7*	Ep=2232.8 keV *5*; T=(1); Γγ<0.03 eV.
7759.0[@] *5*	3+	<4 eV		4.6 *7*	Ep=2239.3 keV *5*; T=1; Γγ=1.19 eV.
7786.4[@] *5*	2,(4)−	17 eV	3	0.24 *9*	Ep=2267.7 keV *5*; Γγ=0.05 eV.
7803[‡] *3*	(2,3,4)−	10 eV	3		Ep=2285 keV *5*.
7826.3[@] *5*	2−	0.050 keV	3	0.23 *8*	Ep=2309.0 keV *5*; T=0; Γp1=0.40 keV, Γγ=0.41 eV.
7873.7[@] *5*	4−	0.020 keV	3		Ep=2358.0 keV *5*.

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[c]	$T_{1/2}$[d]	L[e]	S[f]	Comments
7883.8[@] *5*	4+			0.49 *7*	E_p=2368.4 keV *5*.
7892[‡] *3*	2−	70 keV	1		E_p=2377 keV *3*.
7920.9[@] *5*	2+	0.38 keV	2	1.44 *21*	E_p=2406.6 keV *5*; T=0; Γ_{p1}=0.020 keV, Γ_γ=0.30 eV.
7921.8[@] *5*	3+			1.8 *3*	E_p=2407.8 keV *5*; T=0.
7922[@] *1*	4(+)				E_p=2408 keV *1*.
7932[‡] *3*	0+	28 keV	0		E_p=2418 keV *3*.
7996.7[@] *5*	1+	1.0 keV	0	3.5 *13*	E_p=2485.3 keV *5*; T=1; Γ_γ=3.48 eV.
8001[@] *1*	1−	4.3 keV	1	0.5 *5*	E_p=2490 keV *1*; Γ_{p1}=0.50 keV, Γ_γ=0.19 eV.
8007.4[@] *5*	2+	0.65 keV	2	2.1 *3*	E_p=2496.3 keV *5*; T=1; Γ_{p1}=0.002 keV, Γ_γ=0.71 eV.
8014.3[@] *5*	2+	0.16 keV	2	0.36 *18*	E_p=2503.5 keV *5*; Γ_{p1}=0.11 keV, Γ_γ=0.12 eV.
8032[‡] *3*	2−,(1−)	0.050 keV	1		E_p=2522 keV *3*; Γ_{p1}=2.2 keV.
8053[&] *3*				0.07 *3*	E_p=2544 keV *3*.
8096[‡] *3*	1+	7.4 keV	0	3 *3*	E_p=2588 keV *3*; Γ_γ=1.00 eV.
8107[‡] *3*	2+	0.28 keV	2	1.3 *5*	E_p=2599 keV *3*; Γ_{p1}=0.60 keV, Γ_γ=0.26 eV.
8151[&] *3*				1.9 *19*	E_p=2646 keV *3*.
8166[‡] *3*	1−	1.7 keV	1	0.7 *7*	E_p=2660 keV *3*; Γ_{p1}=0.18 keV, Γ_γ=0.24 eV.
8181[‡] *3*	1+	18 keV	0		E_p=2676 keV *3*.
8187[&] *3*	3−	0.70 keV	3	0.31 *11*	E_p=2683 keV *3* (1992Fr10); Γ_{p1}=0.60 keV, Γ_γ=0.08 eV.
8206[&] *3*	4−	0.040 keV	3	1.9 *3*	E_p=2702 keV *3*; Γ_{p1}=0.010 keV, Γ_γ=0.27 eV.
8207[&] *3*	0+	13 keV	0		E_p=2703 keV *3*.
8209[&] *3*	0−	30 keV	1		E_p=2706 keV *3*.
8271[&] *3*				1.6 *16*	E_p=2770 keV *3*.
8276[&] *3*	2−	0.060 keV	3	0.33 *12*	E_p=2775 keV *3*; Γ_{p1}=0.330 keV, Γ_γ=0.43 eV.
8278[&] *3*	2+	1.3 keV	2	13.3 *19*	E_p=2777 keV *3*; Γ_{p1}=0.030 keV, Γ_{p2}=0.040 keV, Γ_γ=2.81 eV.
8319[&] *3*	1+	6.0 keV	0	3 *3*	E_p=2819 keV *3*; Γ_{p1}=2.7 keV, Γ_γ=1.48 eV.
8350[&] *3*	4−	0.17 keV	3	0.14 *5*	E_p=2851 keV *3*; Γ_{p1}=0.002 keV, Γ_{p2}=0.005 keV, Γ_γ=0.02 eV.
8351[&] *3*				0.32 *12*	E_p=2852 keV *3*.
8352[&] *3*	2−	2.4 keV	1	1.2 *12*	E_p=2853 keV *3*; Γ_{p1}=0.95 keV, Γ_γ=0.33 eV.
8386[&] *3*	3+	0.10 keV	2	1.24 *18*	E_p=2889 keV *3*; Γ_{p1}=0.020 keV, Γ_γ=0.21.
8398[&] *3*	2+	0.24 keV	2	0.4 *4*	E_p=2901 keV *3*; Γ_{p1}=0.40 keV, Γ_{p2}=0.115 keV, Γ_γ=0.25 eV.
8409[&] *3*	3−	0.065 keV	3	0.59 *22*	E_p=2912 keV *3*; Γ_{p1}=0.080 keV, Γ_γ=0.19 eV.
8426[&] *3*				0.13 *5*	E_p=2930 keV *3*.
8432[&] *3*	2+	1.35 keV	2	3.9 *14*	E_p=2936 keV *3*; Γ_{p1}=0.13 keV, Γ_{p2}=0.15 keV, Γ_γ=0.95 eV.
8451[&] *3*	1+	2.3 keV	0	2.2 *22*	E_p=2956 keV *3*; Γ_{p1}=0.60 keV, Γ_γ=0.92 eV.
8484[&] *3*	4−	0.13 keV	3	0.73 *10*	E_p=2990 keV *3*; Γ_{p1}=0.010 keV, Γ_{p2}=0.030 keV, Γ_γ=0.11 eV.
8497[&] *3*	1−	37 keV	1		E_p=3004 keV *3*; Γ_{p1}=2.0 keV.
8519[&] *3*	0−	200 keV	1		E_p=3025 keV *3*.
8526[&] *3*				2.4 *4*	E_p=3033 keV *3*.
8530[&] *3*				0.37 *14*	E_p=3038 keV *3*.
8557[&] *3*	1−	25 keV	1		E_p=3066 keV *3*; Γ_{p1}=4.4 keV.
8570[&] *3*				0.46 *7*	E_p=3079 keV *3*.
8582[&] *3*	2+	0.44 keV	2	0.5 *5*	E_p=3091 keV *3*; Γ_{p1}=0.60 keV, Γ_γ=0.23 eV.
8619[&] *3*	2+	0.50 keV	2	2.0 *7*	E_p=3130 keV *3*; Γ_{p1}=1.1 keV, Γ_{p2}=0.30 keV, Γ_γ=1.52 eV.
8621[&] *3*	1+	4.0 keV	2		E_p=3132 keV *3*; Γ_{p1}=9 keV.
8632[&] *3*	4−	0.45 keV	3	0.78 *11*	E_p=3143 keV *3*; Γ_{p1}=0.015 keV, Γ_{p2}=0.060 keV, Γ_γ=0.10 eV.

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

^{30}P Levels (continued)

E(level)[†]	Jπ[c]	$T_{1/2}$[d]	L[e]	S[f]	Comments
8637[&] 3				19 19	E_p=3148 keV 3; weaker strength and not adopted.
8642[&] 3		0.63 keV		2.4 9	Jπ,L: Jπ=3⁻ and l_p=1 (1992Fr10). E_p=3154 keV 3; Γ_{p1}=0.50 keV, Γ_{p2}=0.20 keV, Γ_γ=0.73 eV.
8647[&] 3	3⁺	0.070 keV	2	1.46 21	E_p=3159 keV 3; Γ_{p1}=0.010 keV, Γ_{p2}=0.070 keV, Γ_γ=0.45 eV.
8662[&] 3	2⁻	3.95 keV	1	4 4	E_p=3174 keV 3; Γ_{p1}=2.1 keV, Γ_{p2}=0.50 keV, Γ_γ=1.42 eV.
8669[&] 3	2⁻	1.5 keV	1	2.7 10	E_p=3182 keV 3; Γ_{p1}=0.15 keV, Γ_{p2}=0.50 keV, Γ_γ=0.78 eV.
8708[&] 3	1⁺	28 keV	0		E_p=3222 keV 3; Γ_{p1}=14 keV.
8730[&] 3	4⁻	0.30 keV	3		E_p=3245 keV 3; Γ_{p2}=0.008 keV.
8755[&] 3	(1⁺)	3.0 keV	2		E_p=3270 keV 3; Γ_{p1}=30 keV.

† From 2000Gr19, except otherwise noted. For resonance levels, corresponding E_p energies were deduced by the evaluators using the reported E_p data and Q_p=5594.75 keV 7 (2021Wa16).
‡ Deduced from the E_p value of 1983Ne04. Revised work by 2000Gr19 yields the same.
# From 1997Va02, deduced from Eγ. Revised work by 2000Gr19 yields the same. The corresponding E_p energy (Lab) was deduced by the evaluators.
@ From 1996Wa33, deduced from Eγ. Revised work by 2000Gr19 yields the same. The corresponding E_p energy (Lab) was deduced by the evaluators.
& Deduced from E_p value of 1992Fr10.
a From 1985Re02. Also reported by 2000Gr19.
b Reported by 1996Wa33 from the primary γ-ray feeding of the resonance states. Revised work by 2000Gr19 yields slight changes.
c Assignments of Jπ from 4926.4 keV to 8014 keV levels from 2000Gr19. 2000Gr19 assigned Jπ, based on l values, γ-ray branching, γ-ray transition strength, etc. considering earlier studies 1983Ne04, 1992Fr10, 1996Wa33 and 1997Va02. Above 8014 keV, assignments are from 1992Fr10. Isospin data are from 2000Gr19. Jπ assignments below 4926.4 keV level taken from the Adopted Levels to accommodate the γ-ray multipolarity assignments, except where otherwise noted.
d Half-life or Γ_{p0}. Half-life from 1987Ti03 (DSA method), except otherwise noted. The lowest uncertainty among the available experimental values is chosen to be the uncertainty of the quoted half-life, if weighted average uncertainty found to be lower than the lowest value. The evaluators noted that the literature uncertainties of the mean lifetime values are mainly statistical. Γ_{p0} from 1992Fr10, a few values of 1983Ne04 are different than that in 1992Fr10. The evaluators assume 1992Fr10 to be the revised version of 1983Ne04. Γ_{p1}, Γ_{p2} and Γ_γ of 1992Fr10 are recorded as comment.
e From 1992Fr10. Earlier l_p values by 1983Ne04 (same group) are same as of 1992Fr10 for the common energy levels.
f From 1985Re02 upto 7493 keV level and from 1992Fr10 above 7493 keV level. S=(2J+1)$\Gamma_\gamma\Gamma_p/\Gamma$, the resonance strength of ^{29}Si(n,γ)^{30}P reaction. Other values are reported by 1969Ha50. 1985Re02 compares his data with the data of 1969Ha50, normalizing those with S=1.04 10 for E_p=413 keV using 1979Ri01, and is in good agreement. Discrepant values are given as comments.

γ(^{30}P)

E_i(level)	J^π_i	Eγ[†]	Iγ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
708.70	1⁺	708.70		0	1⁺	D+Q	+1.0 +34−8	δ: +0.48 4or +2.0 2 (1966Ha27).
1454.23	2⁺	745.53	5.00 8	708.70	1⁺			
		1454.23	100.0 8	0	1⁺	M1+E2	−0.22 2	Mult.,δ: from 1969Ha50, pol=+0.23 10; it appears that 1969Ha50 could not be able to resolve this transition from that of 1483 keV transition decaying from 2937 keV level. δ: −0.21 3 (1966Ha27).
1973.27	3⁺	1264.57	100.0 12	708.70	1⁺	E2(+M3)	+0.01 2	Mult.,δ: from 1969Ha50; pol=+0.52 17 (1969Ha50).
		1973.27	70.9 9	0	1⁺	E2(+M3)	−0.02 3	Mult.,δ: from pol=+0.82 22 (1969Ha50).
2538.95	3⁺	565.68	0.79 5	1973.27	3⁺			

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
2538.95	3+	1830.25	3.23 *10*	708.70	1+			
		2538.95	100.0 *10*	0	1+	(E2(+M3))	−0.02 *3*	Mult.,δ: from pol=+0.47 *33* (1969Ha50).
2723.72	2+	2015.02	2.56 *21*	708.70	1+			
		2723.72	100.0 *9*	0	1+	M1+E2	+3.0 *4*	Mult.,δ: from pol=+0.08 *14* (1969Ha50).
2839.34	3+	1385.11	48.6 *10*	1454.23	2+	D+Q	+12 *+6−3*	
		2130.64	100.0 *15*	708.70	1+			
		2839.34	43.6 *10*	0	1+			
2937.46	2+	964.19	0.75 *7*	1973.27	3+			
		1483.23	100.0 *11*	1454.23	2+	D+Q	+4.1 *+17−9*	δ: other: −0.03 *3* (from 1969Ha50).
		2228.76	12.27 *20*	708.70	1+	D(+Q)	0.0 *+2−3*	
		2260.45	73.6 *9*	677.01	0+			
		2937.46	40.5 *5*	0	1+	D+Q	−0.3 *2*	δ: other: −0.08 *4* or −1.93 (from 1969Ha50).
3019.2	1+	2342.2	100	677.01	0+	M1		Mult.: from pol=−0.26 *18* (1969Ha50).
3733.80	1+	796.30	15.0 *10*	2937.46	2+			
		2279.60	19.6 *12*	1454.23	2+			
		3056.80	64.0 *20*	677.01	0+			
		3733.80	100.0 *20*	0	1+			
3835.80	2+	898.34	100.0 *14*	2937.46	2+	D+Q	−0.12 *3*	
		2381.57	14.1 *6*	1454.23	2+			
		3127.10	27.0 *8*	708.70	1+	D+Q	−3.6 *+5−8*	
3928.61	3+	991.15	100.0 *14*	2937.46	2+			
		2474.38	42.9 *14*	1454.23	2+			
4143.63	2−	1206.17	1.49 *11*	2937.46	2+			
		2689.40	8.6 *5*	1454.23	2+			
		3434.93	4.7 *3*	708.70	1+			
		4143.63	100.0 *10*	0	1+	E1(+M2)	−0.01 *1*	Mult.,δ: from 1969Ha50, pol=+0.21 *12*.
4182.81	2+	1643.86	8.3 *4*	2538.95	3+			
		2209.54	4.6 *3*	1973.27	3+			
		2728.58	3.3 *4*	1454.23	2+			
		3474.11	100.0 *12*	708.70	1+	D+Q		δ: +0.01 *8* or −2.9 *+5−8* (1969Ha50).
		3505.80	1.6 *3*	677.01	0+			
		4182.81	13.8 *4*	0	1+	D(+Q)	−0.1 *+2−1*	
4231.97	4−	1392.63	3.6 *14*	2839.34	3+			
		1693.02	33.0 *10*	2538.95	3+	E1(+M2)	−0.00 *2*	Mult.,δ: from 1969Ha50, pol=+0.42 *21*.
		2258.70	100.0 *14*	1973.27	3+	E1+M2	+0.05 *2*	Mult.,δ: from 1969Ha50, pol=+0.43 *14*; E1+M2 assignment by 1966Ha27; 1966Ha27 suggests for unusual E1-M2 mixing. δ: 0.10 *1* (1966Ha27).
4298.6	4+	1759.6[#] *2*	23[#] *7*	2538.95	3+			
		2844.4[#] *2*	100[#] *7*	1454.23	2+			
4343.8	5+	1804.9	5.3 *4*	2538.95	3+			
		2370.5	100.0 *21*	1973.27	3+			
4422.8	2+	3714.1	4.30 *20*	708.70	1+	D+Q	−3.3 *+9−19*	
		4422.8	100.0 *10*	0	1+	D+Q	−10 *+1−2*	δ: other: +19 *+10−5* (1969Ha50).
4468.33	0+	3759.63	6.5 *9*	708.70	1+			
		4468.33	100.0 *22*	0	1+			Mult.: pol=−0.37 *36* (in 1967Ha26 from 1− to 1+ g.s. decay), here 0+ to 1+, not adopted.
4502.21	1+	3047.98	100.0 *18*	1454.23	2+	D+Q	−0.3 *+1−2*	δ: other: −0.09 *4* or −9.5*+28−70* (1969Ha50).
		3793.51	6.3 *5*	708.70	1+			
		4502.21	71.4 *18*	0	1+	D+Q	−0.09 *4*	δ: from 1969Ha50; other: −0 *+4−5* (2000Gr19).

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
4625.92	3⁻	1688.46	52.3 *14*	2937.46	2⁺			
		2652.65	26.8 *9*	1973.27	3⁺			
		3171.69	100.0 *18*	1454.23	2⁺	E1(+M2)	+0.01 *2*	Mult.,δ: from 1969Ha50, pol=+0.33 *30*.
4736.03	3⁺	1716.83	2.9 *3*	3019.2	1⁺			
		1798.57	100.0 *15*	2937.46	2⁺	D(+Q)	+0.02 *3*	
		3281.80	18.5 *8*	1454.23	2⁺			
		4027.33	11.4 *6*	708.70	1⁺			
		4736.03	18.0 *8*	0	1⁺			
4926.0	3⁻	694.00	100 *3*	4231.97	4⁻	D+Q	+0.29 *4*	δ: from 1969Ha50.
		3471.80	11.6 *6*	1454.23	2⁺			Mult.: 1969Ha50 assumes it to be a pure octupole transition considering (5)⁻ to 2⁺ transition.
4937.3	1	1999.80	22.0 *12*	2937.46	2⁺			
		4260.30	100 *4*	677.01	0⁺			
4941.2	1⁺	2967.9	10.2 *7*	1973.27	3⁺			
		4264.2	100 *4*	677.01	0⁺			
5206.8	3⁺	4498.10	31.6 *13*	708.70	1⁺			
		5206.80	100 *3*	0	1⁺			
5230.1	(2,4)⁻	2390.8	52 *4*	2839.34	3⁺			
		2691.2	48 *4*	2538.95	3⁺			
		3256.8	100 *8*	1973.27	3⁺			
5411.1	2⁻	2473.6	76 *17*	2937.46	2⁺			
		2571.8	100 *15*	2839.34	3⁺			
		3437.8	68 *15*	1973.27	3⁺			
5506.3	1⁻	2568.80	2.50 *20*	2937.46	2⁺			
		4829.30	100 *3*	677.01	0⁺			
		5506.30	1.7 *3*	0	1⁺			
5508.55	3⁺	3535.28	92.3 *19*	1973.27	3⁺			
		4054.32	100.0 *19*	1454.23	2⁺	D+Q	−0.06 *5*	
5576.3	2⁺	1740.50	3.5 *5*	3835.80	2⁺			
		1842.50	3.2 *6*	3733.80	1⁺			
		4122.10	23.8 *16*	1454.23	2⁺			
		4867.60	100 *3*	708.70	1⁺	D(+Q)	−0.05 *5*	
		5576.30	28.6 *16*	0	1⁺			
5701.3	1⁺	1518.49	17.7 *12*	4182.81	2⁺	D+Q	+1.3 *+38−8*	
		2763.80	100 *5*	2937.46	2⁺			
		2977.60	6.3 *8*	2723.72	2⁺			
		3162.40	9.3 *9*	2538.95	3⁺			
5896.7	(1,2)⁺	1716.1[‡] *17*	33.8[‡] *20*	4182.81	2⁺			
		2960.0[‡] *12*	100.0[‡] *21*	2937.46	2⁺			
		3354.4[‡] *23*	2.6[‡] *3*	2538.95	3⁺			
		5180.7[‡] *24*	5.5[‡] *7*	708.70	1⁺			
		5217.9[‡] *20*	2.0[‡] *3*	677.01	0⁺			
		5897	≤1.0[‡]	0	1⁺			
5907.5	(1,2,3⁺)	1407.2[‡] *18*	0.19[‡] *2*	4502.21	1⁺			
		1764.9[‡] *19*	0.18[‡] *2*	4143.63	2⁻			
		2073.0[‡] *20*	0.35[‡] *5*	3835.80	2⁺			
		2174.5[‡] *18*	0.19[‡] *4*	3733.80	1⁺			
		2967.3[‡] *23*	1.20[‡] *10*	2937.46	2⁺			
		3183.4[‡] *24*	0.91[‡] *7*	2723.72	2⁺			
		4452.1[‡] *19*	7.2[‡] *5*	1454.23	2⁺			

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [@]	E_f	J_f^π	Mult.	δ [&]	Comments
5907.5	(1,2,3$^+$)	5195.2[‡] *22*	11.2[‡] *7*	708.70	1$^+$			A_2=−0.32 *8*; A_4=+0.01 *8* (1985Re02)
		5905.4[‡] *12*	100.0[‡] *11*	0	1$^+$			
5934.0	3$^+$	1590.2	100.0 *24*	4343.8	5$^+$			
		2996.5	30.2 *17*	2937.46	2$^+$			
		3094.7	28.3 *17*	2839.34	3$^+$			
		3395.1	5.0 *10*	2538.95	3$^+$			
		3960.7	73.8 *24*	1973.27	3$^+$	D+Q	−2.0 *+5−9*	
5996.2	(1,2$^+$)	1527.3[‡] *16*	1.4[‡] *2*	4468.33	0$^+$			
		2974.7[‡] *19*	3.4[‡] *3*	3019.2	1$^+$			
		3056.9[‡] *20*	2.9[‡] *3*	2937.46	2$^+$			
		4542	≤0.5[‡]	1454.23	2$^+$			
		5285.8[‡] *15*	47.0[‡] *24*	708.70	1$^+$			A_2=+0.37 *3*; A_4=+0.00 *3* (1985Re02)
		5317.0[‡] *15*	100[‡] *4*	677.01	0$^+$			A_2=−0.14 *4*; A_4=−0.02 *3* (1985Re02)
		5994.6[‡] *14*	5.8[‡] *6*	0	1$^+$			
6006.0	3$^+$	3166.7	29 *3*	2839.34	3$^+$			
		3282.3	40 *3*	2723.72	2$^+$			
		3467.1	26 *3*	2538.95	3$^+$			
		4032.7	100 *6*	1973.27	3$^+$			
		4551.8	91 *6*	1454.23	2$^+$			
6093.5	3$^-$	1467.6	100 *4*	4625.92	3$^-$			
		1861.5	70.0 *20*	4231.97	4$^-$			
		1949.9	21.2 *14*	4143.63	2$^-$			
		3156.0	5.6 *8*	2937.46	2$^+$			
		3369.8	3.0 *8*	2723.72	2$^+$			
6229.0	(5)$^+$	1930.4	17 *3*	4298.6	4$^+$			
		2300.4	100 *8*	3928.61	3$^+$			
		3690.1	11 *3*	2538.95	3$^+$			
		4255.7	28 *5*	1973.27	3$^+$			
6268.7	2$^-$	3249.5		3019.2	1$^+$			A_2=−0.14 *8*; A_4=+0.05 *8* (1985Re02)
		3429.4	11	2839.34	3$^+$			A_2=+0.12 *14*; A_4=−0.02 *13* (1985Re02)
		3545.0	74	2723.72	2$^+$			A_2=+0.43 *4*; A_4=+0.04 *3* (1985Re02)
		3729.8	65	2538.95	3$^+$			A_2=+0.16 *4*; A_4=−0.03 *4* (1985Re02)
		4295.4	100	1973.27	3$^+$	D+Q	−0.05 *3*	A_2=+0.15 *11*; A_4=−0.07 *10* (1985Re02) Mult.,δ: from 1969Ha50 as E1+M2 based on pol=+0.44 *22*. See the comments for J^π(6269.2) in the Adopted Levels.
6299.3	3$^+$	2116.5	25	4182.81	2$^+$	M1+E2	+0.04 *2*	A_2=−0.17 *4*; A_4=−0.06 *4* (1985Re02) Mult.: from pol=−0.29 *25* (1969Ha50).
		3361.8	100	2937.46	2$^+$	M1(+E2)	+0.02 *2*	A_2=−0.19 *4*; A_4=−0.04 *4* (1985Re02) Mult.: from pol=−0.31 *14* (1969Ha50).
6481.6	1$^+$	2013.3	43	4468.33	0$^+$			A_2=+0.09 *12*; A_4=−0.16 *11* (1985Re02)
		2298.8	30	4182.81	2$^+$			A_2=+0.12 *7*; A_4=+0.02 *7* (1985Re02)
		5804.6	100	677.01	0$^+$			A_2=+0.19 *3*; A_4=−0.04 *3* (1985Re02)
6520.8	2$^+$	2018.6	100	4502.21	1$^+$	D+Q	+0.03 *2*	A_2=+0.27 *7*; A_4=−0.03 *7* (1985Re02)
		3583.3	42	2937.46	2$^+$	D+Q	−0.10 *+5−6*	A_2=−0.50 *17*; A_4=+0.09 *17* (1985Re02)
		3981.9	46	2538.95	3$^+$	D+Q	+5 *+3−1*	A_2=−0.24 *14*; A_4=+0.09 *14* (1985Re02)

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ†	I_γ@	E_f	J^π_f	Mult.	δ&	Comments
6597.7	(3,4$^+$,5$^+$)	2299.1	2.6 *6*	4298.6	4$^+$			
		2365.7	3.3 *6*	4231.97	4$^-$			
		2669.1	5.9 *8*	3928.61	3$^+$	D+Q		δ: +9 +∞−5, based on J^π = 4$^+$ assignment.
		3758.4	12.5 *13*	2839.34	3$^+$	D+Q	+0.3 *1*	δ: based on J^π = 4$^+$ assignment.
		4624.4	100 *6*	1973.27	3$^+$	D+Q	+0.45 *5*	δ: based on J^π = 4$^+$ assignment.
6667.8	3$^+$	1091.5	5.6 *6*	5576.3	2$^+$	D(+Q)	−0.0 *1*	
		1159.3	1.3 *4*	5508.55	3$^+$			
		2041.9	3.1 *4*	4625.92	3$^-$			
		2435.8	3.1 *4*	4231.97	4$^-$			
		2485.0	36.5 *19*	4182.81	2$^+$	D(+Q)	−0.00 *2*	
		2524.2	13.5 *10*	4143.63	2$^-$			
		2832.0	2.5 *4*	3835.80	2$^+$	D+Q	+1.7 *+15−6*	
		2934.0	12.5 *17*	3733.80	1$^+$			
		3648.6	0.40 *20*	3019.2	1$^+$			
		3730.3	100 *6*	2937.46	2$^+$	D+Q	+0.04 *+1−2*	
		3828.5	1.20 *20*	2839.34	3$^+$			
		3944.1	6.7 *6*	2723.72	2$^+$	D+Q		δ: −30 *+20−∞*.
		4694.5	4.0 *6*	1973.27	3$^+$			
		5213.6	1.00 *20*	1454.23	2$^+$			
6853.9	1$^+$	2351.7	2.80 *10*	4502.21	1$^+$	D(+Q)	−0.0 *2*	
		2385.6	6.6 *3*	4468.33	0$^+$			
		2431.1	0.21 *4*	4422.8	2$^+$			
		2925.3	0.30 *10*	3928.61	3$^+$			
		3834.7	0.20 *4*	3019.2	1$^+$			
		3916.4	21.5 *10*	2937.46	2$^+$	D(+Q)	−0.0 *2*	A_2=−0.08 *7*; A_4=−0.19 *9* (1985Re02)
		4130.2	3.00 *10*	2723.72	2$^+$	D+Q	+1.8 *+34−9*	
		4314.9	0.50 *10*	2538.95	3$^+$			
		4880.6	0.50 *10*	1973.27	3$^+$			
		6145.2	1.10 *10*	708.70	1$^+$			
		6176.9	100 *4*	677.01	0$^+$			A_2=−0.14 *7*; A_4=−0.19 *8* (1985Re02)
		6853.9	3.9 *3*	0	1$^+$			
6873.4	3$^+$	1364.9	4.9 *3*	5508.55	3$^+$	D+Q	+1.4 *+4−3*	
		2641.4	4.6 *3*	4231.97	4$^-$			
		2690.6	13.0 *8*	4182.81	2$^+$			
		2729.8	4.1 *3*	4143.63	2$^-$			
		2944.8	3.2 *3*	3928.61	3$^+$			
		3935.9	78 *3*	2937.46	2$^+$	D+Q	−0.05 *2*	
		4034.1	5.9 *5*	2839.34	3$^+$			
		4149.7	20.3 *11*	2723.72	2$^+$	D(+Q)	+0.01 *+3−2*	
		4900.1	37.3 *19*	1973.27	3$^+$			
		5419.2	100 *5*	1454.23	2$^+$			
6877	2$^-$	2694	1.60 *10*	4182.81	2$^+$			
		2733	1.20 *10*	4143.63	2$^-$			
		3858	6.4 *4*	3019.2	1$^+$			
		3939	3.2 *3*	2937.46	2$^+$			
		4038	3.1 *3*	2839.34	3$^+$			
		4153	5.3 *4*	2723.72	2$^+$			
		5423	9.6 *7*	1454.23	2$^+$			
		6168	3.2 *3*	708.70	1$^+$			
		6877	100 *4*	0	1$^+$			
6921	1$^-$	2419	4.3 *5*	4502.21	1$^+$			
		2453	20.6 *16*	4468.33	0$^+$	E1		E_γ: 2458 in 1967Ha26. Mult.: pol=+0.73 *19* (1967Ha26), γ decays to 0$^+$ level.
		2777	2.4 *3*	4143.63	2$^-$			

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
6921	1⁻	3085	0.80 *20*	3835.80	2⁺			
		3984	2.1 *5*	2937.46	2⁺			
		4197	1.1 *3*	2723.72	2⁺			
		5467	14.3 *16*	1454.23	2⁺	D+Q		A_2=−0.24 *6*; A_4=+0.19 *7* (1985Re02)
		6244	100 *8*	677.01	0⁺			A_2=−0.88 *5*; A_4=−0.06 *5* (1985Re02)
		6921	12.7 *16*	0	1⁺			
6978.3	(3,4)⁺	1044.3	15.4 *17*	5934.0	3⁺			
		1469.8	100 *7*	5508.55	3⁺	D+Q	−6 *+2−4*	δ: based on J^π = 4⁺ assignment.
		2634.5	8.3 *13*	4343.8	5⁺			
		3049.7	16.5 *20*	3928.61	3⁺			
		4040.8	3.3 *11*	2937.46	2⁺			
		4254.6	17.4 *22*	2723.72	2⁺			
		4439.4	17.4 *22*	2538.95	3⁺			
		5005.0	33 *4*	1973.27	3⁺			
		5524.1	8.3 *20*	1454.23	2⁺			
7014.9	2⁻	2389.0	10.0 *7*	4625.92	3⁻			
		2512.7	87 *3*	4502.21	1⁺	E1		Mult.: from pol=+0.37 *14* (1969Ha50).
		2832.1	6.7 *3*	4182.81	2⁺			
		2871.3	38.0 *17*	4143.63	2⁻	M1		Mult.: from pol=+0.6 *4* (1969Ha50).
		3281.1	5.7 *3*	3733.80	1⁺			
		3995.7	34.0 *17*	3019.2	1⁺			
		4291.2	2.3 *3*	2723.72	2⁺			
		4476.0	13.0 *7*	2538.95	3⁺			
		5041.6	1.20 *20*	1973.27	3⁺			
		6306.2	35.0 *20*	708.70	1⁺			
		7014.9	100 *3*	0	1⁺			
7045.0	4⁻	951.5	42.4 *25*	6093.5	3⁻	D+Q	−0.07 *+3−4*	
		1039.0	12.4 *12*	6006.0	3⁺			
		1536.5	8.8 *9*	5508.55	3⁺			
		2901.4	53 *3*	4143.63	2⁻			
		4205.7	14.7 *15*	2839.34	3⁺			
		4506.1	100 *6*	2538.95	3⁺			
		5071.7	62 *3*	1973.27	3⁺			
7049.4	4⁻	2123.4	32.1 *15*	4926.0	3⁻	M1+E2		Mult.: from pol=−0.44 *22* (1969Ha50); γ decays to 3⁻,(5⁻) level. δ: +0.13 *4* (1966Ha27).
		2423.5	29.4 *11*	4625.92	3⁻	M1+E2		Mult.: from pol=−0.61 *28* (1969Ha50); γ decays to 3⁻ level. δ: +0.70 *3* (1966Ha27).
		2817.4	100 *4*	4231.97	4⁻	M1		Mult.: from pol=+0.76 *19* (1969Ha50); the evaluators′ note: the sign of the extracted polarization value should be negative based on the assigned multipolarity of the transition.
		3120.8	2.54 *12*	3928.61	3⁺			
		4210.1	7.1 *4*	2839.34	3⁺			
		4510.5	7.1 *4*	2538.95	3⁺			
		5076.1	14.4 *6*	1973.27	3⁺	E1		Mult.: from pol=+0.56 *51* (1969Ha50).
		5595.2	0.23 *3*	1454.23	2⁺			
7119.1	(1⁺,2,3)	1610.6	3.6 *4*	5508.55	3⁺			
		4181.6	100 *6*	2937.46	2⁺			
		4580.2	4.0 *7*	2538.95	3⁺			
		5145.8	8.9 *11*	1973.27	3⁺			
		7119.1	22 *3*	0	1⁺			
7178	1⁻	3035.4	3.2 *4*	4143.63	2⁻			
		3445.2	5.7 *6*	3733.80	1⁺			

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J_i^π	E_γ †	I_γ @	E_f	J_f^π	Mult.	δ &	Comments
7178	1⁻	4159.8	20.6 *15*	3019.2	1⁺			A_2=+0.15 *9*; A_4=+0.06 *12* (1985Re02)
		6470.3	100 *6*	708.70	1⁺			A_2=+0.15 *2*; A_4=+0.02 *3* (1985Re02)
		6502.0	23.2 *17*	677.01	0⁺	D		A_2=−0.32 *9*; A_4=+0.06 *11* (1985Re02)
		7179.0	60 *4*	0	1⁺			A_2=+0.06 *6*; A_4=+0.03 *8* (1985Re02)
7203.0	2⁺	1197.0	0.30 *10*	6006.0	3⁺			
		1694.5	5.50 *20*	5508.55	3⁺			
		2780.2	0.30 *10*	4422.8	2⁺			
		4265.5	100 *5*	2937.46	2⁺	D+Q	−0.06 *+3−4*	A_2=+0.34 *6*; A_4=+0.04 *8* (1985Re02)
		4479.3	1.70 *10*	2723.72	2⁺			
		4664.1	0.20 *5*	2538.95	3⁺			
		5229.7	1.20 *10*	1973.27	3⁺			
		5748.8	2.30 *20*	1454.23	2⁺			
		6494.3	4.4 *6*	708.70	1⁺			
		6526.0	0.30 *10*	677.01	0⁺			
7207.5	0⁺	1701.2	21.8 *10*	5506.3	1⁻			
		2270.2	4.3 *3*	4937.3	1			
		3473.7	5.1 *4*	3733.80	1⁺			
		4188.3	100 *4*	3019.2	1⁺			A_2=+0.39 *5*; A_4=−0.09 *6* (1985Re02)
		6498.8	8.1 *13*	708.70	1⁺			
7223.3	2⁻	2597.4	19.8 *9*	4625.92	3⁻	D(+Q)	−0.00 *+3−2*	A_2=−0.10 *4*; A_4=−0.05 *5* (1985Re02)
		3079.7	100 *4*	4143.63	2⁻	M1+E2	−0.06 *2*	A_2=+0.35 *2*; A_4=+0.00 *3* (1985Re02) Mult.: pol=+0.75 *12* (1969Ha50).
		3489.5	4.90 *20*	3733.80	1⁺			
		4204.1	9.6 *6*	3019.2	1⁺			
		4384.0	2.60 *20*	2839.34	3⁺			
		4684.4	1.70 *20*	2538.95	3⁺			
		5250.0	1.90 *20*	1973.27	3⁺			
		5769.1	10.0 *6*	1454.23	2⁺			A_2=+0.40 *5*; A_4=−0.04 *6* (1985Re02)
		6514.6	23.0 *13*	708.70	1⁺	D		A_2=+0.33 *3*; A_4=−0.10 *3* (1985Re02)
		7223.3	40.6 *19*	0	1⁺	D		A_2=−0.30 *3*; A_4=−0.08 *3* (1985Re02)
7282.0	3⁺	1705.7	1.40 *10*	5576.3	2⁺	D+Q	+0.18 *9*	δ: +0.18 *9* or -∞ (2000Gr19).
		3099.2	30.4 *13*	4182.81	2⁺	D+Q	−0.07 *+2−1*	
		3446.2	0.4 *7*	3835.80	2⁺			
		4344.5	100 *4*	2937.46	2⁺			
		4442.7	7.3 *4*	2839.34	3⁺	D+Q	+1.4 *+4−3*	
		4558.3	10.9 *4*	2723.72	2⁺	D+Q	−3.8 *+6−7*	
		4743.1	11.6 *4*	2538.95	3⁺	D+Q	−0.23 *8*	
		5827.8	60.0 *22*	1454.23	2⁺			δ: −3.7 *3* or −0.05 *2* (2000Gr19).
7283.4	2⁺	2076.6	8.0 *3*	5206.8	3⁺	D+Q	+0.06 *3*	
		2342.2	29.1 *11*	4941.2	1⁺	D+Q	−0.4 *1*	
		2547.4	11 *6*	4736.03	3⁺	D+Q	+0.06 *3*	
		2860.6	100 *3*	4422.8	2⁺	D+Q	−0.05 *1*	
		3354.8	1.60 *10*	3928.61	3⁺			
		3447.6	8.3 *3*	3835.80	2⁺	D+Q	−0.07 *4*	
		3549.6	16.9 *9*	3733.80	1⁺			
		4345.9	1.50 *20*	2937.46	2⁺			
		4559.7	33.1 *14*	2723.72	2⁺	D(+Q)	+0.01 *2*	
		5829.2	9.7 *6*	1454.23	2⁺	D+Q	+2.3 *+5−3*	
		6574.7	5.7 *3*	708.70	1⁺	D(+Q)	+0.01 *7*	
		6606.4	6.6 *3*	677.01	0⁺			
		7283.4	54.3 *23*	0	1⁺	D+Q	+0.06 *1*	
7304.9	2⁻	2802.7	100 *5*	4502.21	1⁺			
		3122.1	27.3 *18*	4182.81	2⁺			
		3161.3	5.9 *5*	4143.63	2⁻			
		3571.1	30.9 *18*	3733.80	1⁺			

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E$_i$(level)	J^π_i	E$_γ$†	I$_γ$@	E$_f$	J^π_f	Mult.	δ&	Comments
7304.9	2⁻	4367.4	84 *4*	2937.46	2⁺			
		4465.6	15.9 *9*	2839.34	3⁺			
		4581.2	1.4 *5*	2723.72	2⁺			
		4766.0	4.1 *5*	2538.95	3⁺			
		5331.6	91 *5*	1973.27	3⁺			
		5850.7	4.1 *5*	1454.23	2⁺			
		6596.2	82 *5*	708.70	1⁺			
		7304.9	5.0 *9*	0	1⁺			
7306.3	2⁻	1037.6	3.8 *5*	6268.7	2⁻			
		1212.8	10.0 *5*	6093.5	3⁻			
		2570.3	2.0 *3*	4736.03	3⁺			
		2883.5	1.8 *3*	4422.8	2⁺			
		3074.3	2.8 *3*	4231.97	4⁻			
		3123.5	12.0 *8*	4182.81	2⁺			
		3162.7	2.0 *3*	4143.63	2⁻			
		3470.5	11.8 *13*	3835.80	2⁺			
		4368.8	100 *5*	2937.46	2⁺			
		4467.0	11.8 *8*	2839.34	3⁺			
		4582.6	8.8 *8*	2723.72	2⁺			
		5333.0	50.0 *25*	1973.27	3⁺			
		5852.1	31.3 *18*	1454.23	2⁺			
		6597.6	1.5 *3*	708.70	1⁺			
7322	1⁻	2820	67 *6*	4502.21	1⁺			
		3139	4.5 *15*	4182.81	2⁺			
		3178	7.9 *18*	4143.63	2⁻			
		4385	91 *6*	2937.46	2⁺			
		5868	33 *6*	1454.23	2⁺			
		7322	100 *9*	0	1⁺			
7383.4	(2⁺,3⁻)	1449.4	10.2 *6*	5934.0	3⁺			
		1874.9	4.00 *20*	5508.55	3⁺			
		4445.9	100 *5*	2937.46	2⁺			
		4659.7	2.3 *4*	2723.72	2⁺			
		5929.2	1.9 *4*	1454.23	2⁺			
		7383.4	2.4 *4*	0	1⁺			
7493	1⁺	2991	16.0 *10*	4502.21	1⁺	D+Q	−2 +*1*−*21*	
		3025	10.0 *8*	4468.33	0⁺			
		3310	45.8 *21*	4182.81	2⁺	D+Q		A_2=+0.09 *5*; A_4=0.02 *6* (1985Re02) δ: −6 +4−∞.
		3349	1.3 *4*	4143.63	2⁻			
		4556	100 *5*	2937.46	2⁺	D+Q		A_2=+0.17 *10*; A_4=−0.06 *12* (1985Re02) δ: +12 +∞−10.
		4769	2.5 *4*	2723.72	2⁺			
		6039	2.7 *6*	1454.23	2⁺			
		6816	27.1 *21*	677.01	0⁺			
		7493	3.1 *6*	0	1⁺			
7560.5	3⁺	1554.5	33.5 *17*	6006.0	3⁺	D+Q	+1.6 *2*	
		1626.5	52.2 *25*	5934.0	3⁺	D+Q	−0.68 +*5*−*4*	
		1984.2	100 *4*	5576.3	2⁺	D+Q	−0.04 +*2*−*1*	
		2052.0	30.4 *17*	5508.55	3⁺	D+Q	+2.0 *3*	
		3137.7	3.0 *4*	4422.8	2⁺			
		3216.7	2.6 *4*	4343.8	5⁺			
		3261.9	4.8 *4*	4298.6	4⁺			
		3328.5	2.0 *3*	4231.97	4⁻			
		3377.7	100 *4*	4182.81	2⁺	D+Q	−0.08 +*1*−*2*	
		3416.9	2.3 *4*	4143.63	2⁻			

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^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
7560.5	3+	3826.7	37.8 22	3733.80	1+			
		4623.0	49.1 25	2937.46	2+	D+Q	+0.06 4	
		4836.8	4.8 4	2723.72	2+			
		5021.6	5.7 9	2538.95	3+			
		6851.8	6.5 9	708.70	1+			
7562.5	2+	1263.2	2.0 5	6299.3	3+			
		1861.2	59 3	5701.3	1+	D+Q	+0.1 1	
		2056.2	100 5	5506.3	1−			
		2355.7	15.5 10	5206.8	3+	D+Q	+0.12 5	
		2625.2	24.5 15	4937.3	1			
		2826.5	34.5 20	4736.03	3+	D+Q	+0.03 3	
		3139.7	5.2 5	4422.8	2+	D+Q	+1.3 +9−5	
		3379.7	1.9 3	4182.81	2+			
		3633.9	6.0 5	3928.61	3+	D+Q	+0.1 +1−2	
		3726.7	44.0 25	3835.80	2+	D+Q	−0.09 +3−4	A_2=+0.23 4; A_4=−0.37 5 (1985Re02)
		4543.3	9.5 10	3019.2	1+	D(+Q)	−0.1 1	
		4625.0	9.5 10	2937.46	2+			δ: +360 +∞−350.
		4838.8	6.0 5	2723.72	2+			
		5023.6	17.0 10	2538.95	3+			
		6108.3	85 5	1454.23	2+	D+Q	+0.09 6	A_2=+0.19 11; A_4=−0.37 14 (1985Re02)
		6853.8	17.5 15	708.70	1+			
		6885.5	8.0 10	677.01	0+			
		7562.5	56 4	0	1+	D+Q	+0.05 2	
7579.9	2−	1486.4	100 6	6093.5	3−			
		1645.9	3.6 6	5934.0	3+			
		2003.6	5.8 6	5576.3	2+			
		2954.0	1.1 3	4625.92	3−			
		3347.9	3.1 3	4231.97	4−			
		3397.1	3 3	4182.81	2+			
		3436.3	4.2 8	4143.63	2−			
		3651.3	5.3 6	3928.61	3+			
		3744.1	7.8 6	3835.80	2+			
		4642.4	50 3	2937.46	2+			A_2=−0.08 7; A_4=+0.00 9 (1985Re02)
		4856.2	61 3	2723.72	2+	D+Q		A_2=−0.29 7; A_4=−0.05 8 (1985Re02)
		5041.0	9.2 8	2538.95	3+			
		5606.6	11.7 11	1973.27	3+			
		6125.7	10.0 17	1454.23	2+			
		7579.9	3.6 6	0	1+			
7605.0	2+	2096.5	2.20 10	5508.55	3+	D+Q	+0.02 +3−4	
		3102.8	0.60 10	4502.21	1+			
		3422.2	3.90 20	4182.81	2+	D+Q	+2.1 2	
		4585.8	0.30 10	3019.2	1+			
		4667.5	100 5	2937.46	2+	D+Q	+2.4 1	
		4881.3	1.10 10	2723.72	2+			
		5066.1	1.30 10	2538.95	3+			
		6150.8	0.50 10	1454.23	2+			
		6896.3	1.40 10	708.70	1+			
		6928.0	0.30 10	677.01	0+			
		7605.0	3.00 20	0	1+	D+Q	+8 2	
7636.0	3+	1336.7	1.10 10	6299.3	3+			
		2429.2	1.60 20	5206.8	3+			
		2900.0	32.2 16	4736.03	3+	D+Q	−0.17 5	
		3213.2	14.1 8	4422.8	2+	D+Q	−5 +1−2	A_2=−0.18 8; A_4=−0.16 9 (1985Re02)
		3337.4	4.6 3	4298.6	4+			
		3404.0	8.9 5	4231.97	4−			

Continued on next page (footnotes at end of table)

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ†	I_γ@	E_f	J^π_f	Mult.	δ&	Comments
7636.0	3+	3453.2	13.2 *8*	4182.81	2+	D+Q	−2.4 +*3*−*4*	
		3707.4	2.70 *20*	3928.61	3+			
		3800.2	31.9 *16*	3835.80	2+	D+Q	−0.04 *3*	A_2=−0.32 *4*; A_4=−0.07 *5* (1985Re02)
		4698.5	13.5 *8*	2937.46	2+			
		4796.7	14.6 *8*	2839.34	3+			A_2=+0.53 *10*; A_4=+0.06 *12* (1985Re02)
		4912.3	22.4 *14*	2723.72	2+			
		5097.1	100 *5*	2538.95	3+			A_2=+0.42 *3*; A_4=+0.03 *4* (1985Re02)
		5662.7	4.6 *3*	1973.27	3+			
		6181.8	1.9 *3*	1454.23	2+			
		7636.0	4.3 *5*	0	1+			
7644.3	3+	1345.0	1.10 *10*	6299.3	3+			
		2437.5	2.50 *20*	5206.8	3+			
		2908.3	35.0 *19*	4736.03	3+			
		3018.4	1.30 *10*	4625.92	3−			
		3221.5	16.6 *9*	4422.8	2+	D+Q	−3.0 *2*	A_2=−0.44 *5*; A_4=+0.02 *6* (1985Re02)
		3345.7	3.00 *20*	4298.6	4+			
		3412.3	5.3 *3*	4231.97	4−			
		3461.5	13.4 *6*	4182.81	2+	D+Q	−7 *1*	
		3500.7	1.00 *10*	4143.63	2−			
		3808.5	38.10 *19*	3835.80	2+	D+Q	−0.07 *2*	A_2=−0.30 *4*; A_4=−0.06 *5* (1985Re02)
		4706.8	32.2 *16*	2937.46	2+	D+Q	−2.4 +*2*−*1*	
		4805.0	19.7 *9*	2839.34	3+	D+Q	−0.17 *7*	A_2=+0.47 *7*; A_4=+0.00 *9* (1985Re02)
		4920.6	32.5 *19*	2723.72	2+	D(+Q)	−0.00 *2*	
		5105.4	100 *6*	2538.95	3+			A_2=+0.40 *6*; A_4=+0.00 *7* (1985Re02)
		5671.0	8.4 *6*	1973.27	3+			
		6935.6	0.80 *20*	708.70	1+			
7688.2	4−	1459.2	6.2 *8*	6229.0	(5)+			
		2179.7	1.2 *3*	5508.55	3+			
		2277.1	6.3 *7*	5411.1	2−			
		2458.1	28.3 *17*	5230.1	(2,4)−			
		3344.4	100 *7*	4343.8	5+			
		3389.6	19.0 *15*	4298.6	4+			
		3456.2	1.5 *3*	4231.97	4−			
		7688.2	4.2 *7*	0	1+			
7742	1−	4723	11.6 *16*	3019.2	1+			
		4805	30 *3*	2937.46	2+			
		6288	41 *5*	1454.23	2+			
		7033	51 *5*	708.70	1+			
		7065	35 *5*	677.01	0+			
		7742	100 *8*	0	1+			
7749.3	1+	3247.1	5.4 *6*	4502.21	1+	D(+Q)	−0.0 *3*	
		3281.0	3.7 *4*	4468.33	0+			
		4730.1	4.2 *4*	3019.2	1+	D+Q	+1.0 +*12*−*5*	
		4811.8	100 *6*	2937.46	2+	D+Q	−0.0 *2*	
		5025.6	2.4 *4*	2723.72	2+	D+Q		δ: +1 +∞−1.
		6295.1	3.0 *4*	1454.23	2+			
		7040.6	1.5 *3*	708.70	1+			
		7072.3	23.9 *15*	677.01	0+			
		7749.3	6.4 *7*	0	1+			
7752.7	3+	1818.7	100 *8*	5934.0	3+	D+Q	+0.05 *7*	
		2244.2	20.0 *18*	5508.55	3+	D+Q	−1.2 *3*	
		3824.1	3.8 *8*	3928.61	3+			
		3916.9	11.3 *13*	3835.80	2+			
		4815.2	7.5 *13*	2937.46	2+			
		5213.8	16.0 *18*	2538.95	3+			

Continued on next page (footnotes at end of table)

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
7752.7	3+	5779.4	22.5 *25*	1973.27	3+	D+Q	−0.2 *1*	
		6298.5	53 *5*	1454.23	2+			
		7044.0	4.0 *10*	708.70	1+			
		7752.7	13.5 *20*	0	1+			
7759.0	3+	3256.8	1.00 *20*	4502.21	1+			
		3336.2	2.0 *4*	4422.8	2+	D+Q	−0.07 *+8−9*	
		3830.4	3.1 *4*	3928.61	3+	D+Q	−0.2 *+1−2*	
		4821.5	1.0 *4*	2937.46	2+			
		4919.7	14.3 *16*	2839.34	3+	D+Q	+0.04 *9*	A_2=+0.49 *5*; A_4=−0.08 *6* (1985Re02)
		5035.3	100 *10*	2723.72	2+	D(+Q)	−0.01 *+1−2*	A_2=−0.29 *1*; A_4=−0.06 *2* (1985Re02)
		5220.1	3.7 *6*	2538.95	3+	D+Q	−0.4 *2*	
		5785.7	25.5 *20*	1973.27	3+	D+Q	−0.26 *6*	A_2=−0.50 *6*; A_4=−0.07 *7* (1985Re02)
		6304.8	45 *4*	1454.23	2+	D(+Q)	−0.00 *2*	A_2=−0.25 *3*; A_4=−0.10 *3* (1985Re02)
		7759.0	1.2 *4*	0	1+			
7786.4	2,(4)−	1780.4	33 *3*	6006.0	3+			
		3642.8	8.020	4143.63	2−			
		3857.8	22 *3*	3928.61	3+			
		4947.1	73 *7*	2839.34	3+			
		5247.5	100 *7*	2538.95	3+			
		5813.1	97 *7*	1973.27	3+			
7826.3	2−	3643.5	100 *7*	4182.81	2+			
		3682.7	3.7 *9*	4143.63	2−			
		4807.1	3.3 *13*	3019.2	1+			
		4888.8	32 *4*	2937.46	2+			
		6372.1	46 *4*	1454.23	2+			
7873.7	4−	1939.7	39 *3*	5934.0	3+			
		2365.2	33 *3*	5508.55	3+			
		2947.7	27 *3*	4926.0	3−			
		3137.7	17.9 *24*	4736.03	3+			
		3641.7	100 *9*	4231.97	4−			
		5334.8	39 *6*	2538.95	3+			
		5900.4	33 *6*	1973.27	3+			
		6419.5	15 *3*	1454.23	2+			
7883.8	4+	3461.0	4.2 *9*	4422.8	2+			
		3540.0	70 *6*	4343.8	5+	D+Q	+0.04 *+3−2*	
		3585.2	14.8 *15*	4298.6	4+	D+Q	+0.7 *+5−4*	
		3955.2	6.4 *12*	3928.61	3+			
		4048.0	10.9 *15*	3835.80	2+			
		5044.5	100 *6*	2839.34	3+	D+Q	+0.24 *+2−3*	
		5160.1	5.5 *12*	2723.72	2+			
		5344.9	52 *3*	2538.95	3+	D(+Q)	−0.01 *3*	
		5910.5	18.8 *24*	1973.27	3+			
		6429.6	21.2 *24*	1454.23	2+			
7892	2−	3748	2.0 *3*	4143.63	2−			
		4873	2.8 *5*	3019.2	1+			
		7183	10.6 *10*	708.70	1+			
		7892	100 *7*	0	1+			
7920.9	2+	2412.4	1.8 *4*	5508.55	3+			
		2714.1	10.4 *7*	5206.8	3+			
		3184.9	22.1 *14*	4736.03	3+	D+Q	−8 *+4−60*	
		3295.0	18.2 *14*	4625.92	3−			
		3777.3	6.4 *7*	4143.63	2−			
		3992.3	21.8 *18*	3928.61	3+			
		4085.1	20.0 *14*	3835.80	2+	D+Q	−0.2 *+1−2*	
		4983.4	9.6 *11*	2937.46	2+	D+Q	−0.4 *1*	

Continued on next page (footnotes at end of table)

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[@]	E_f	J^π_f	Mult.	δ[&]	Comments
7920.9	2+	5197.2	10.7 *11*	2723.72	2+			
		5382.0	100 *7*	2538.95	3+	D(+Q)	−0.00 *8*	
		5947.6	71 *4*	1973.27	3+	D+Q	+1.2 *+13−5*	
		6466.7	22.9 *18*	1454.23	2+			
		7212.2	40 *3*	708.70	1+	D+Q	−0.13 *8*	
7921.8	3+	3185.8	2.2 *4*	4736.03	3+			
		3578.0	29.4 *20*	4343.8	5+			
		3623.2	6.9 *6*	4298.6	4+			
		3739.0	1.40 *20*	4182.81	2+			
		3993.2	2.5 *4*	3928.61	3+			
		5082.5	100 *6*	2839.34	3+			
		5382.9	31.4 *20*	2538.95	3+			
		5948.5	21.2 *18*	1973.27	3+			
		6467.6	1.00 *20*	1454.23	2+			
		7213.1	0.60 *20*	708.70	1+			
7922	4(+)	3578	27.5 *25*	4343.8	5+			
		3993	22.5 *25*	3928.61	3+			
		5083	100 *10*	2839.34	3+	D+Q	−0.11 *+5−4*	
		5383	53 *5*	2538.95	3+			
		5949	35 *5*	1973.27	3+			
		6468	12.5 *25*	1454.23	2+			
7996.7	1+	2490.4	3.7 *4*	5506.3	1−			
		3059.4	3.7 *4*	4937.3	1			
		4262.9	7.2 *6*	3733.80	1+	D+Q	−1.0 *+6−15*	
		4977.5	11.9 *8*	3019.2	1+	D(+Q)	−0.0 *3*	
		7319.7	1.9 *5*	677.01	0+			
		7996.7	100 *5*	0	1+	D(+Q)	−0.2 *+2−1*	
8001	1−	5064	15.3 *14*	2937.46	2+			
		6547	12.5 *14*	1454.23	2+			
		7292	12.5 *14*	708.70	1+			
		7324	100 *8*	677.01	0+			
8007.4	2+	2073.4	2.30 *20*	5934.0	3+	D+Q	+0.20 *7*	
		2431.1	1.0 *12*	5576.3	2+	D+Q	−1.6 *+6−11*	
		3824.6	30.8 *15*	4182.81	2+	D+Q	−1.0 *3*	
		4078.8	1.80 *20*	3928.61	3+			
		4273.6	1.00 *10*	3733.80	1+			
		4988.2	0.40 *10*	3019.2	1+			
		5069.9	100 *6*	2937.46	2+	D+Q	−0.73 *8*	
		5283.7	0.80 *10*	2723.72	2+			
		6034.1	1.10 *20*	1973.27	3+			
		6553.2	3.2 *3*	1454.23	2+			
		7298.7	1.10 *20*	708.70	1+			
		7330.4	0.80 *10*	677.01	0+			
		8007.4	9.1 *6*	0	1+	D+Q		δ: +20 +∞−10.
8014.3	2+	2505.8	100 *10*	5508.55	3+	D(+Q)	+0.01 *3*	
		3831.5	97 *10*	4182.81	2+	D+Q	+0.02 *5*	
		6560.1	43 *7*	1454.23	2+			
		7305.6	47 *7*	708.70	1+	D+Q	−1.4 *2*	
		8014.3	47 *7*	0	1+	D+Q	+0.30 *6*	

† Calculated from the level energy differences, recoil energy subtracted, except otherwise noted.
‡ From 2022Do04.
# From 1985Re02.

Continued on next page (footnotes at end of table)

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50 (continued)

γ(^{30}P) (continued)

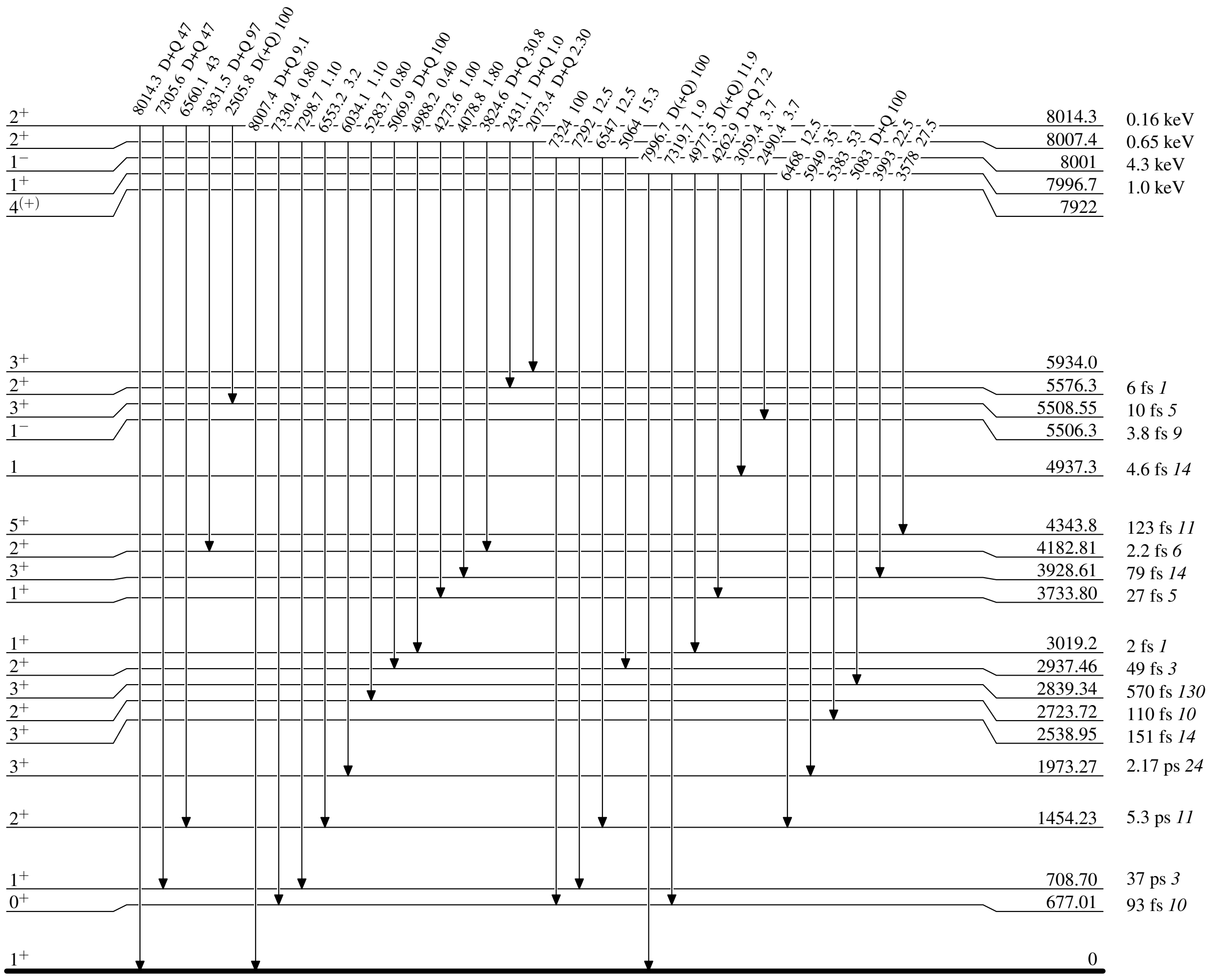
[@] Branching intensities of γ-rays are: from 2000Gr19 for the levels 1454.23 keV to 6229.0 keV; from 1997Va02 for the levels 6597.7 keV to 7283.4 keV; and from 1996Wa33 for the levels from 7304.9 keV to 8014.3 keV, except otherwise noted.

[&] From 2000Gr19, except otherwise noted.

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme

Intensities: Relative photon branching from each level

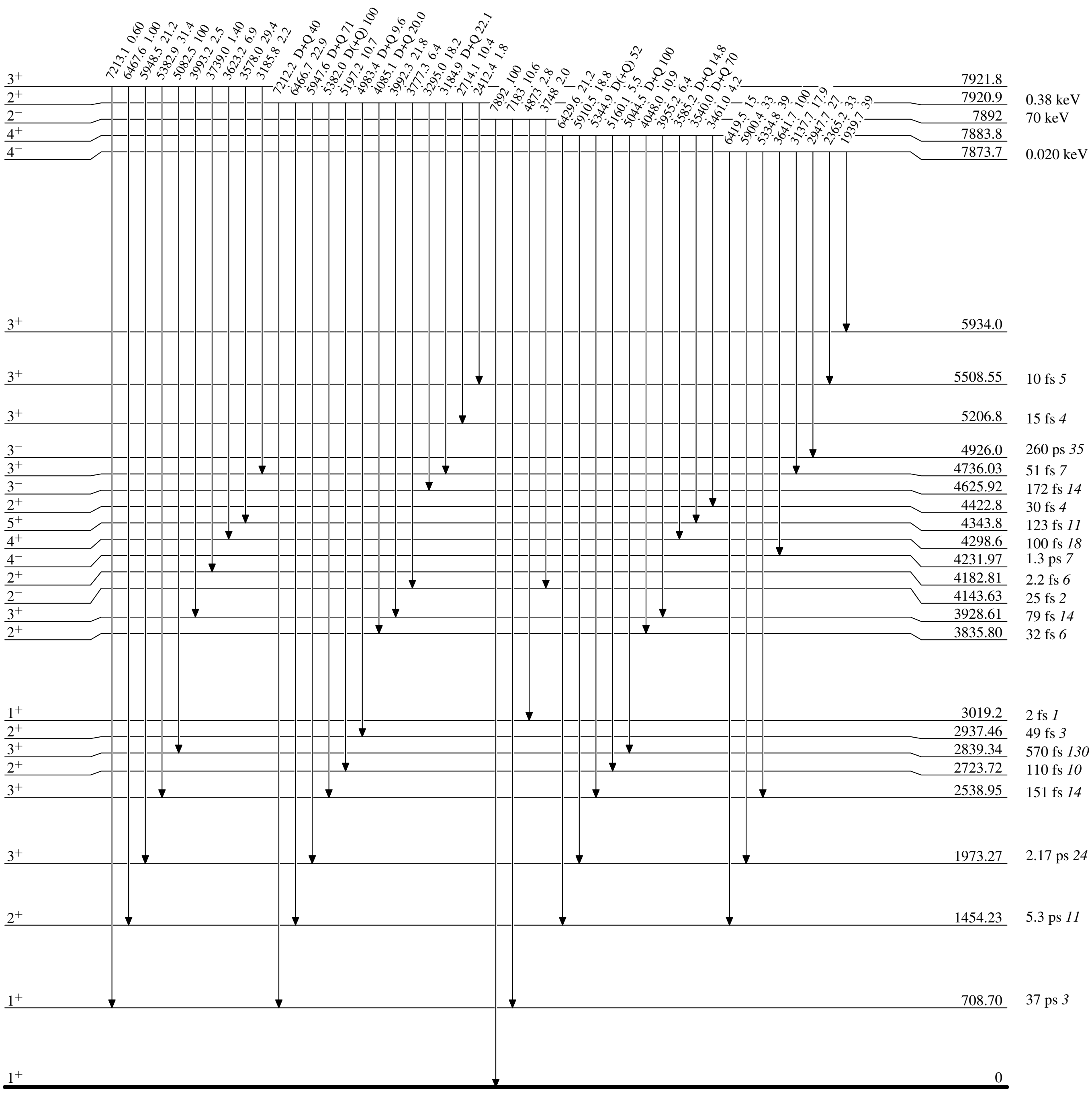


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

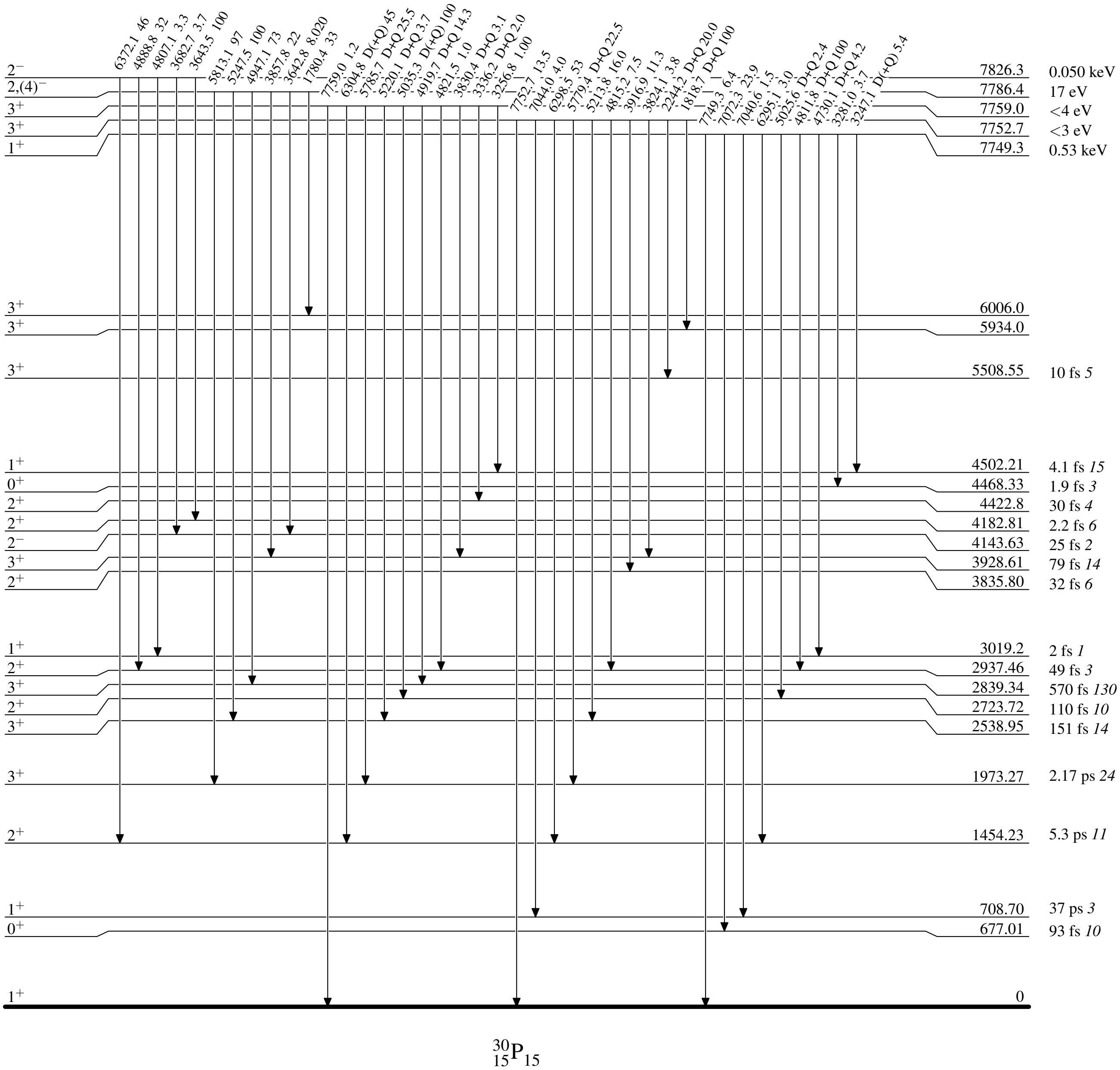


$^{30}_{15}P_{15}$

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

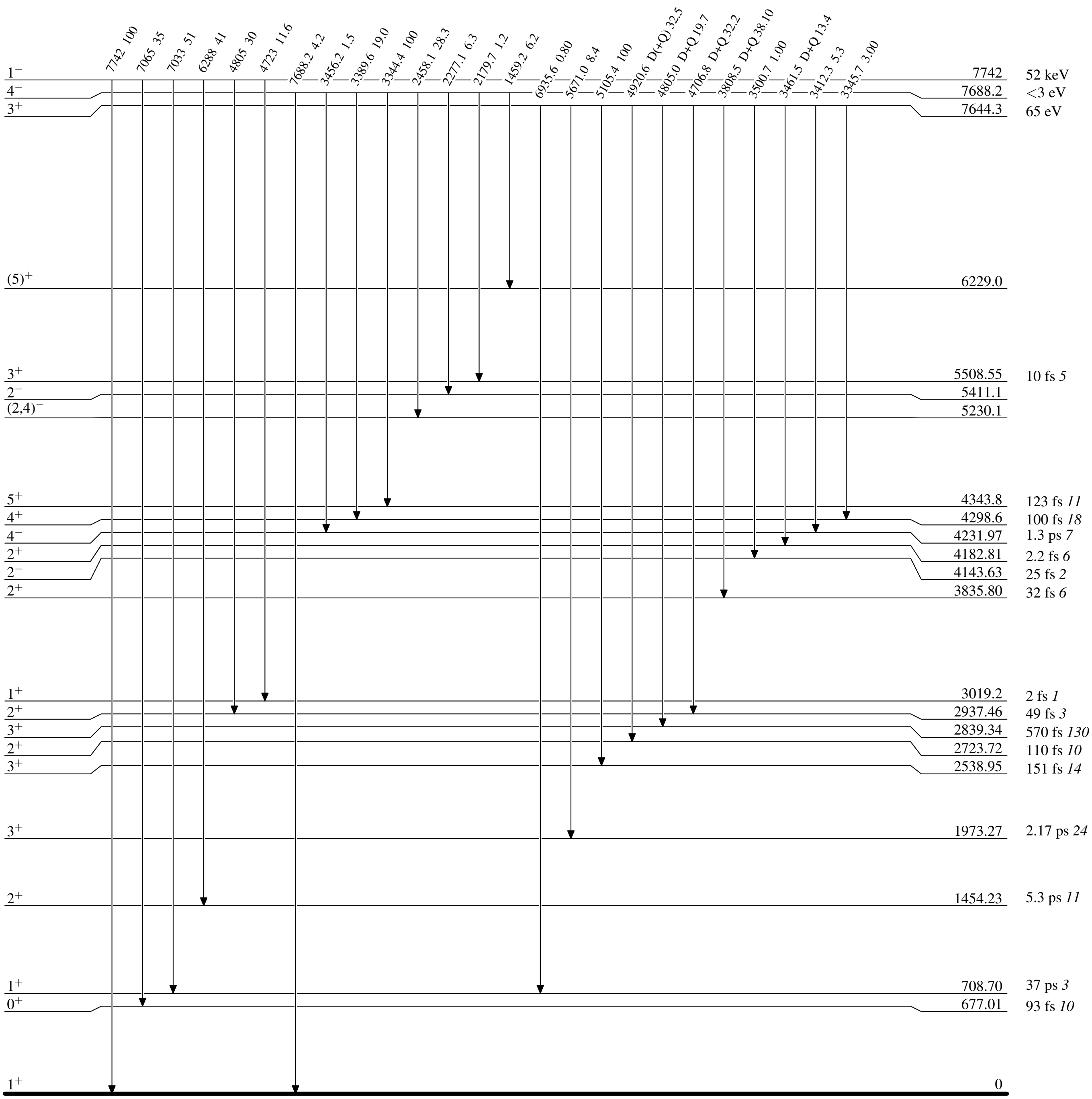
Intensities: Relative photon branching from each level



^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

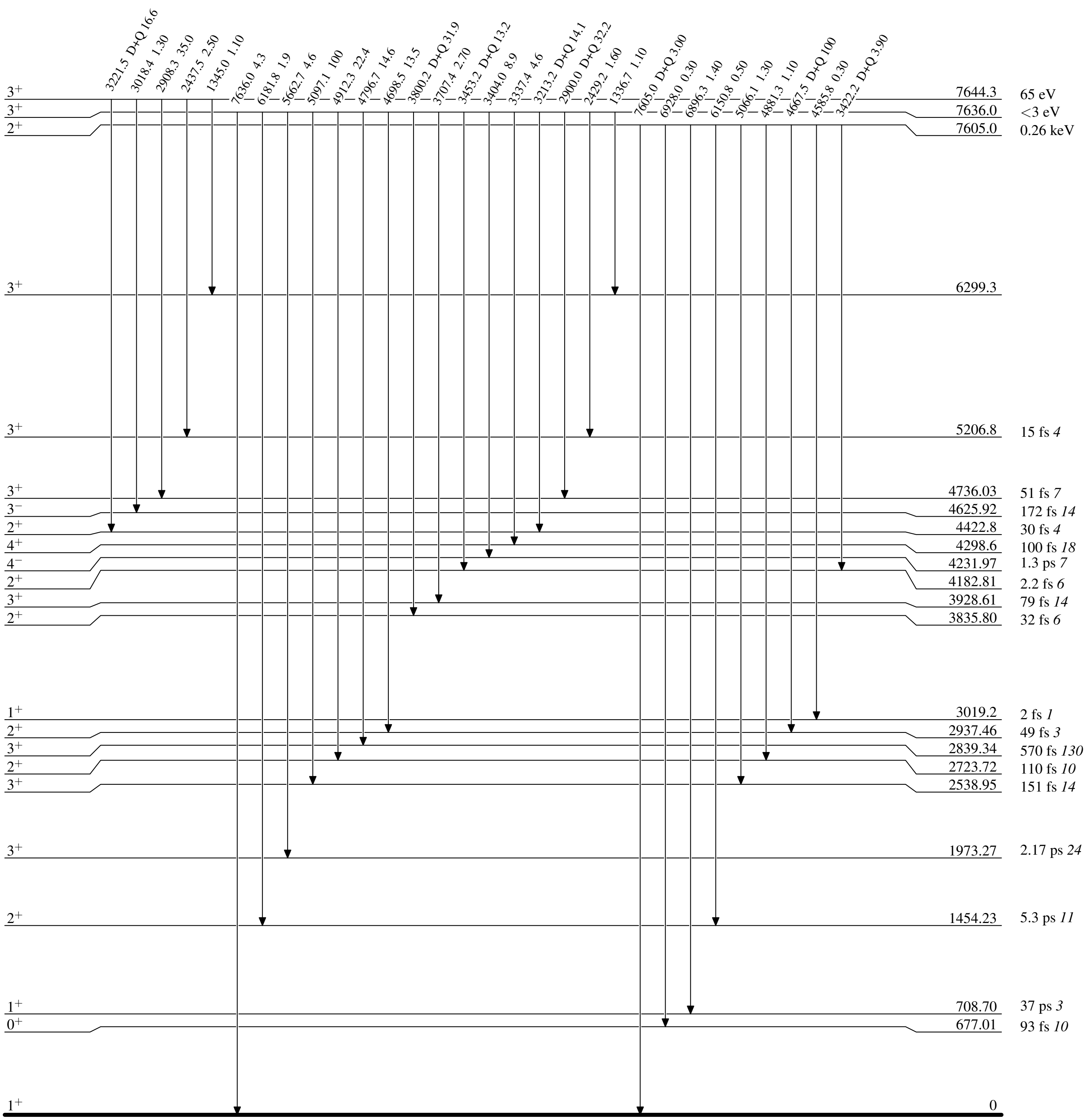


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

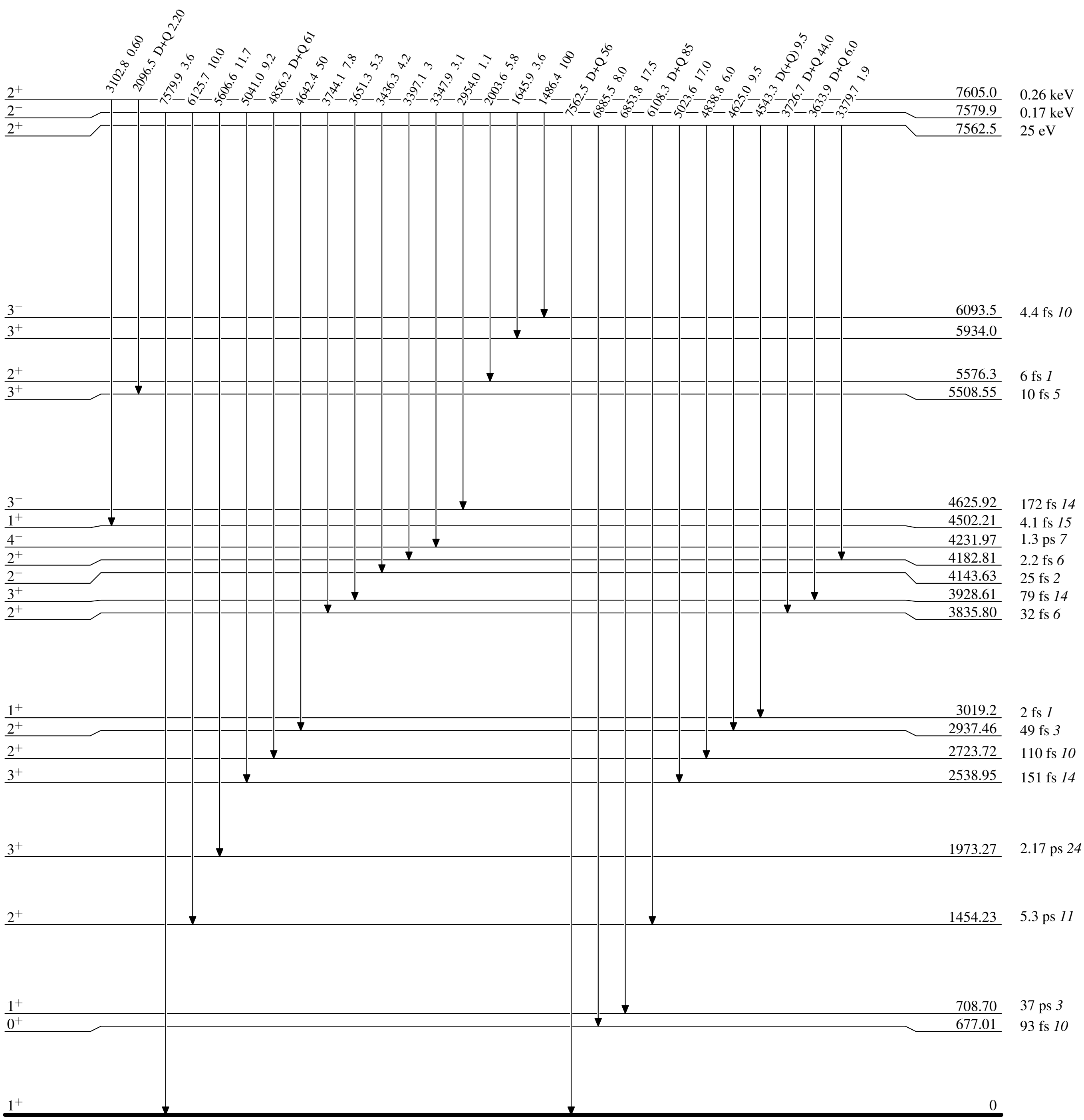


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

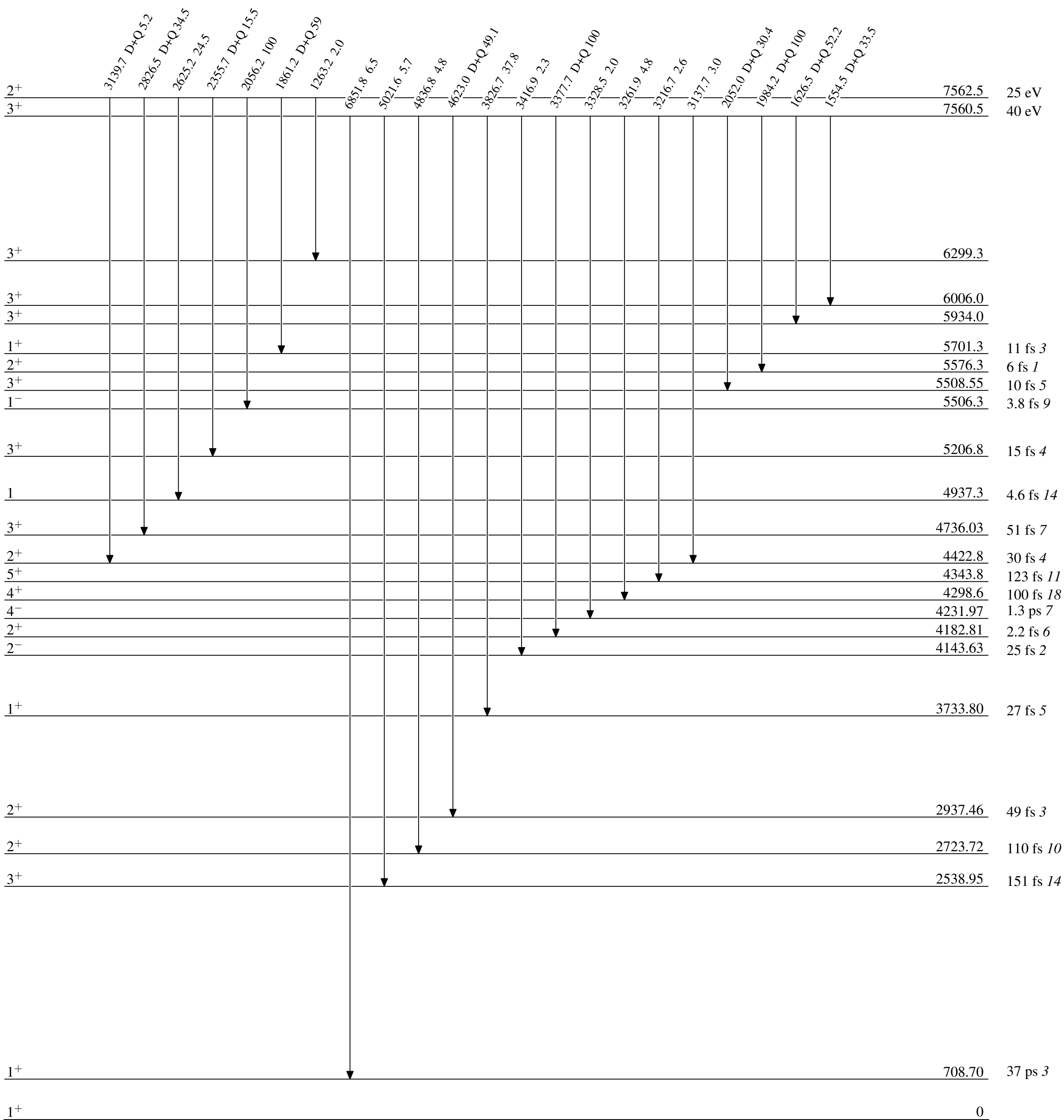


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

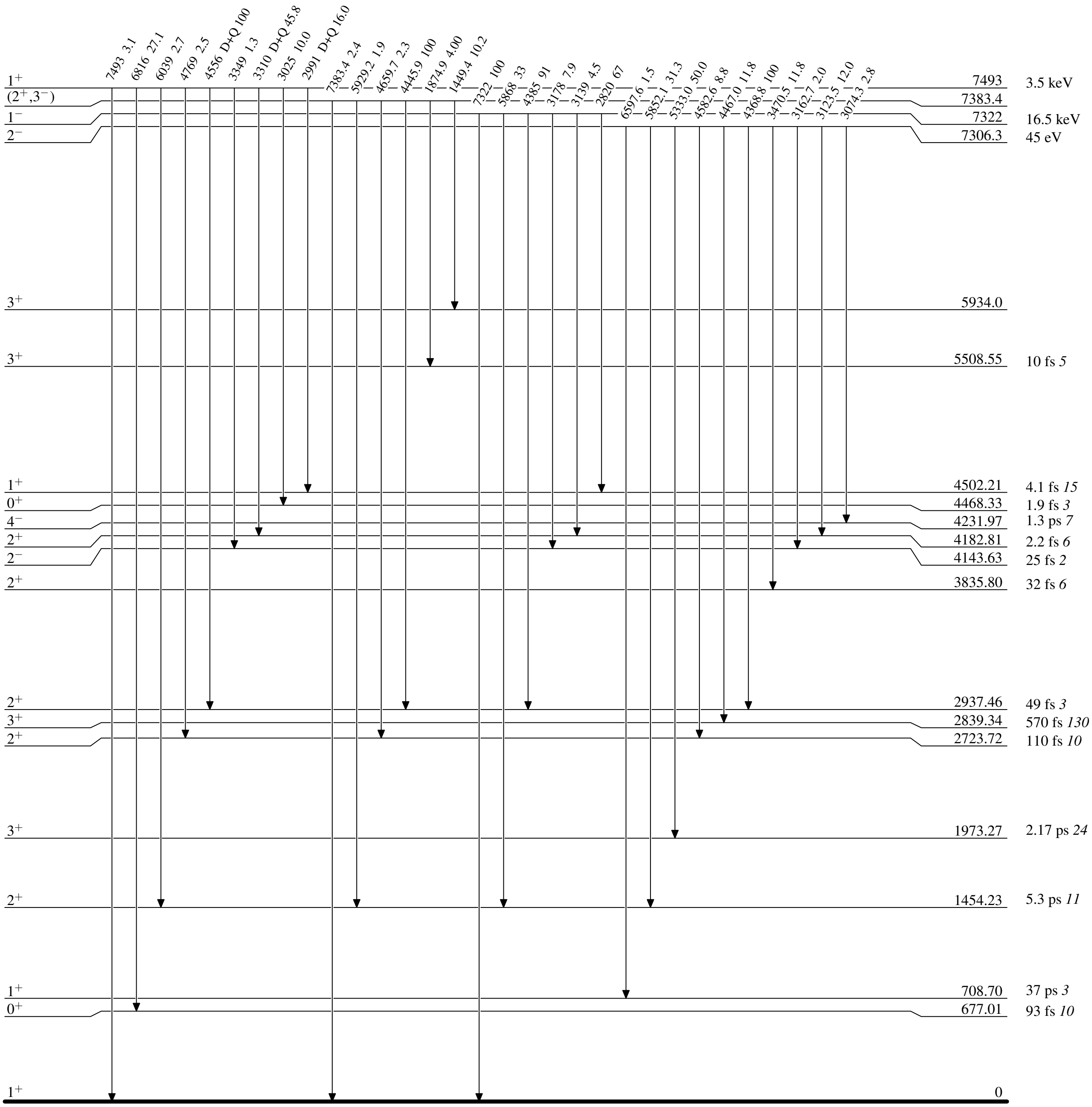


$^{30}_{15}P_{15}$

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

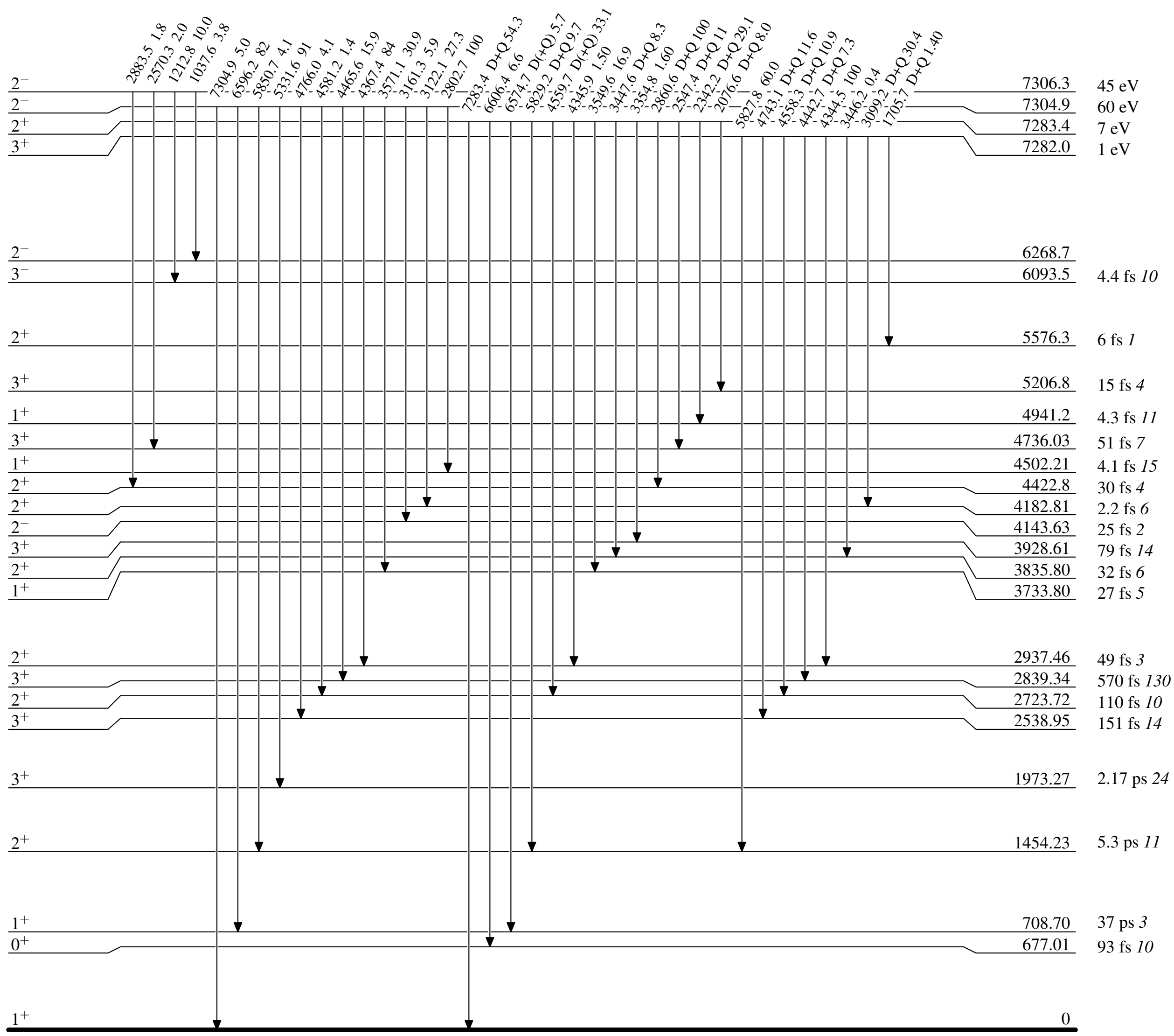


$^{30}_{15}P_{15}$

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intentities: Relative photon branching from each level

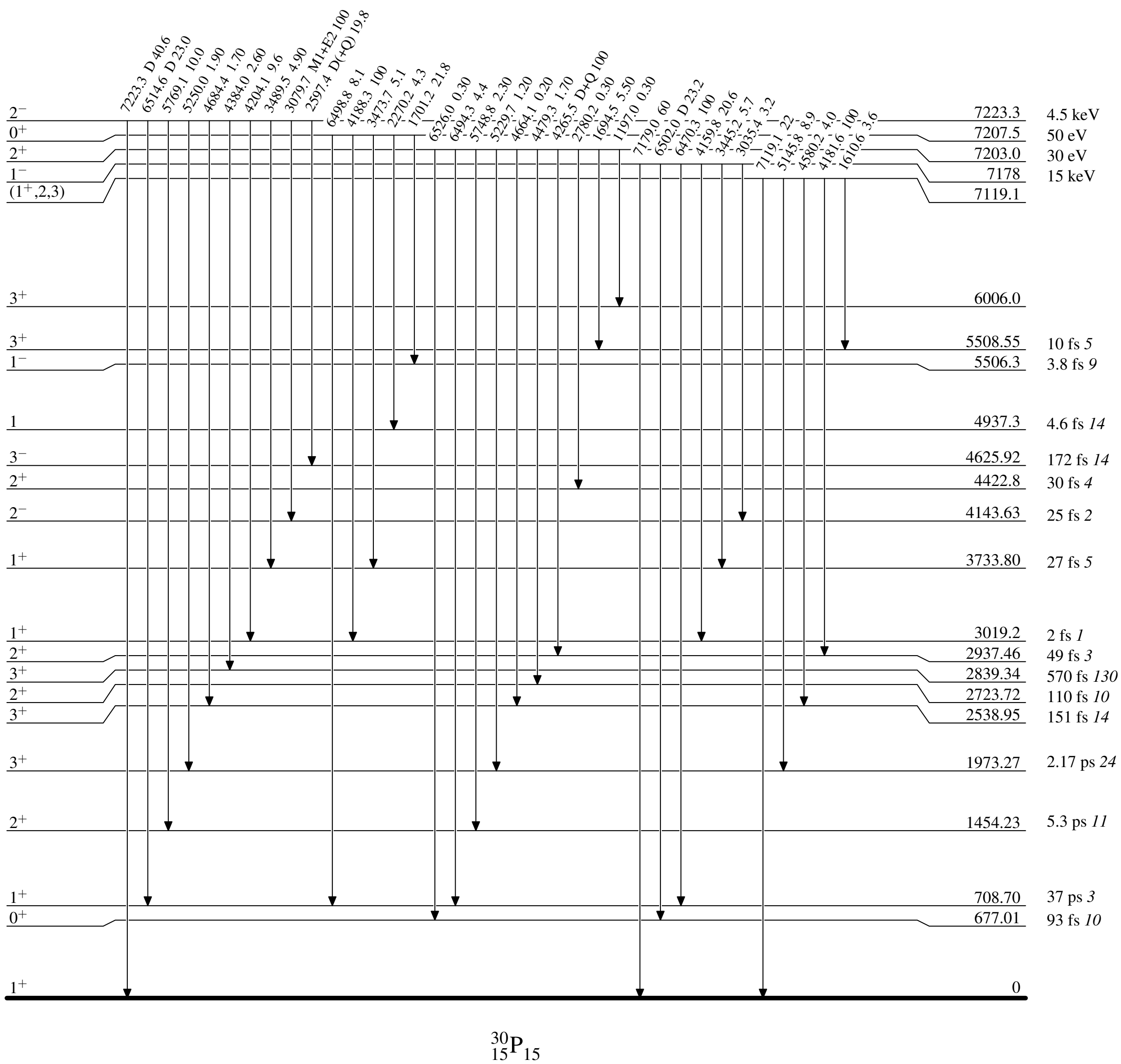


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

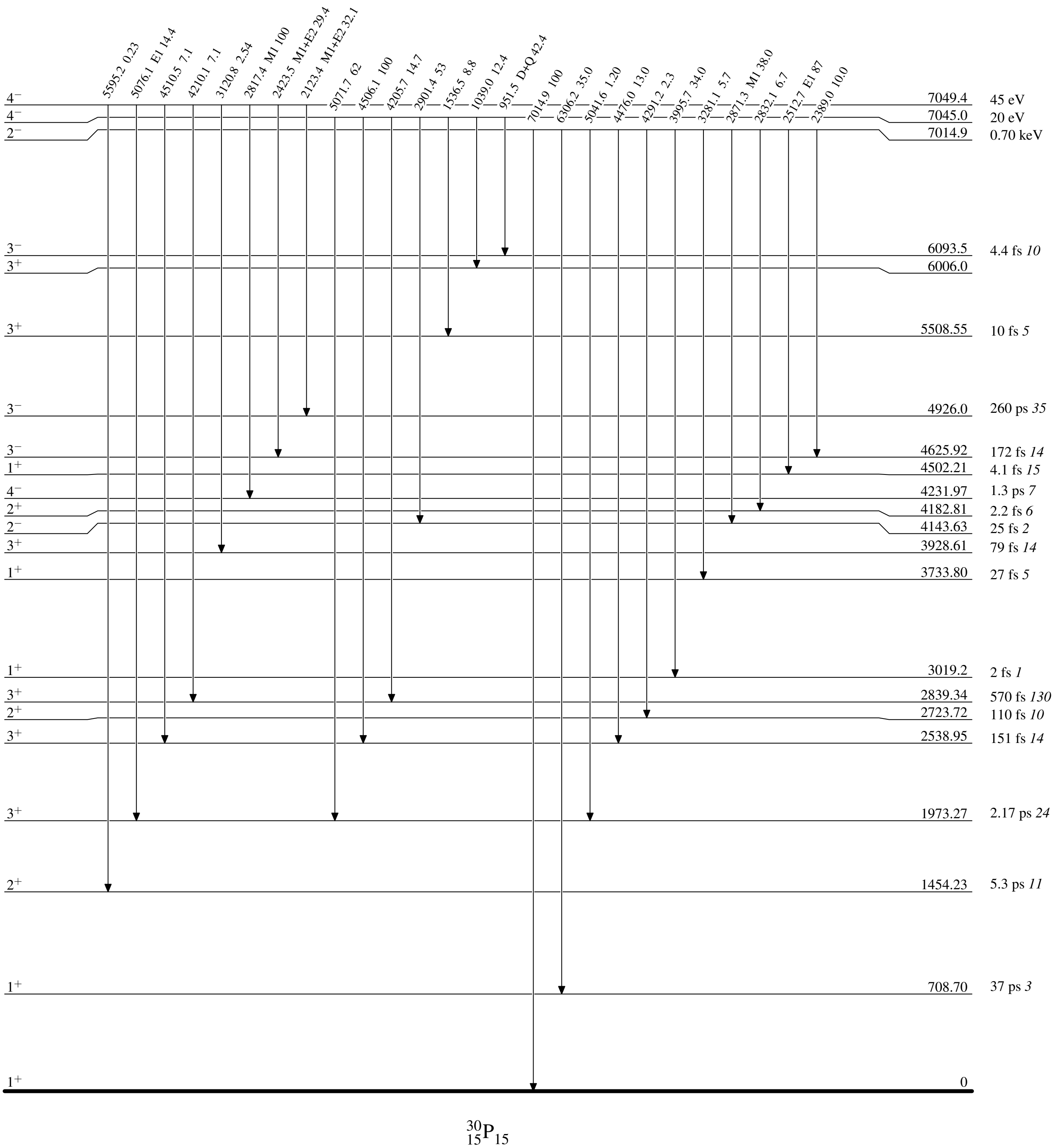
Intensities: Relative photon branching from each level



$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

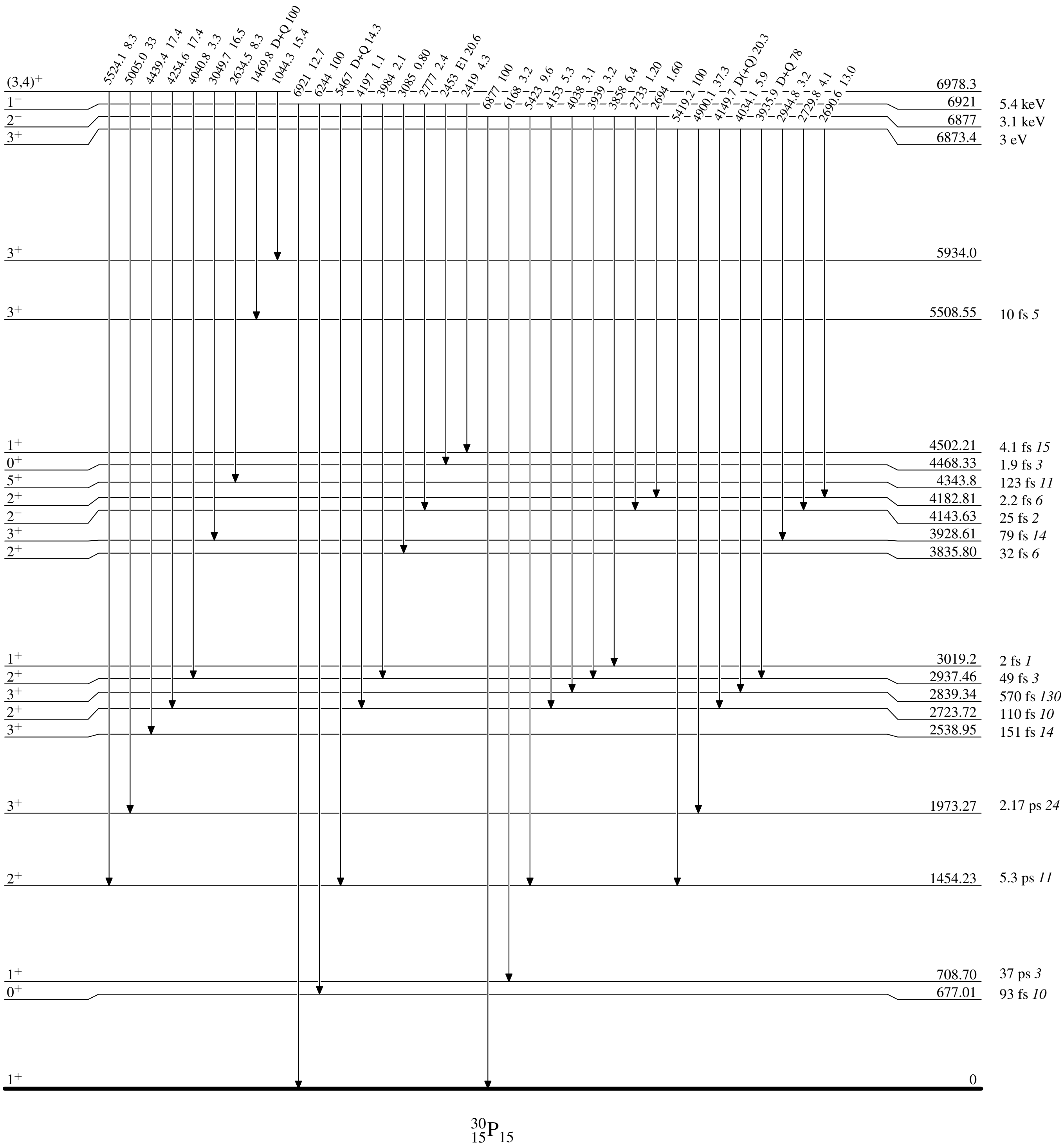
Intensities: Relative photon branching from each level



$^{29}Si(p,\gamma)$,$^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

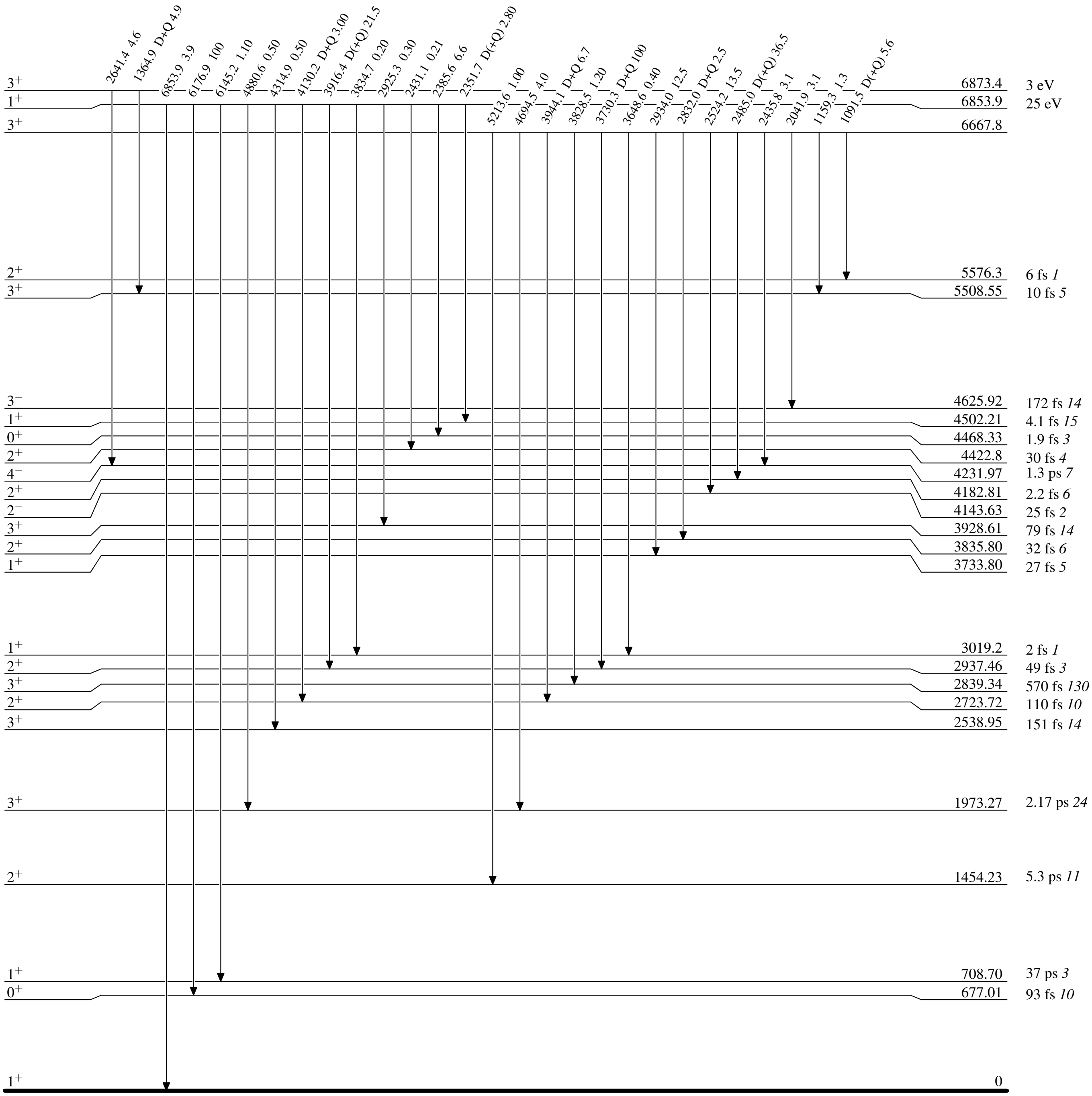
Intensities: Relative photon branching from each level



^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

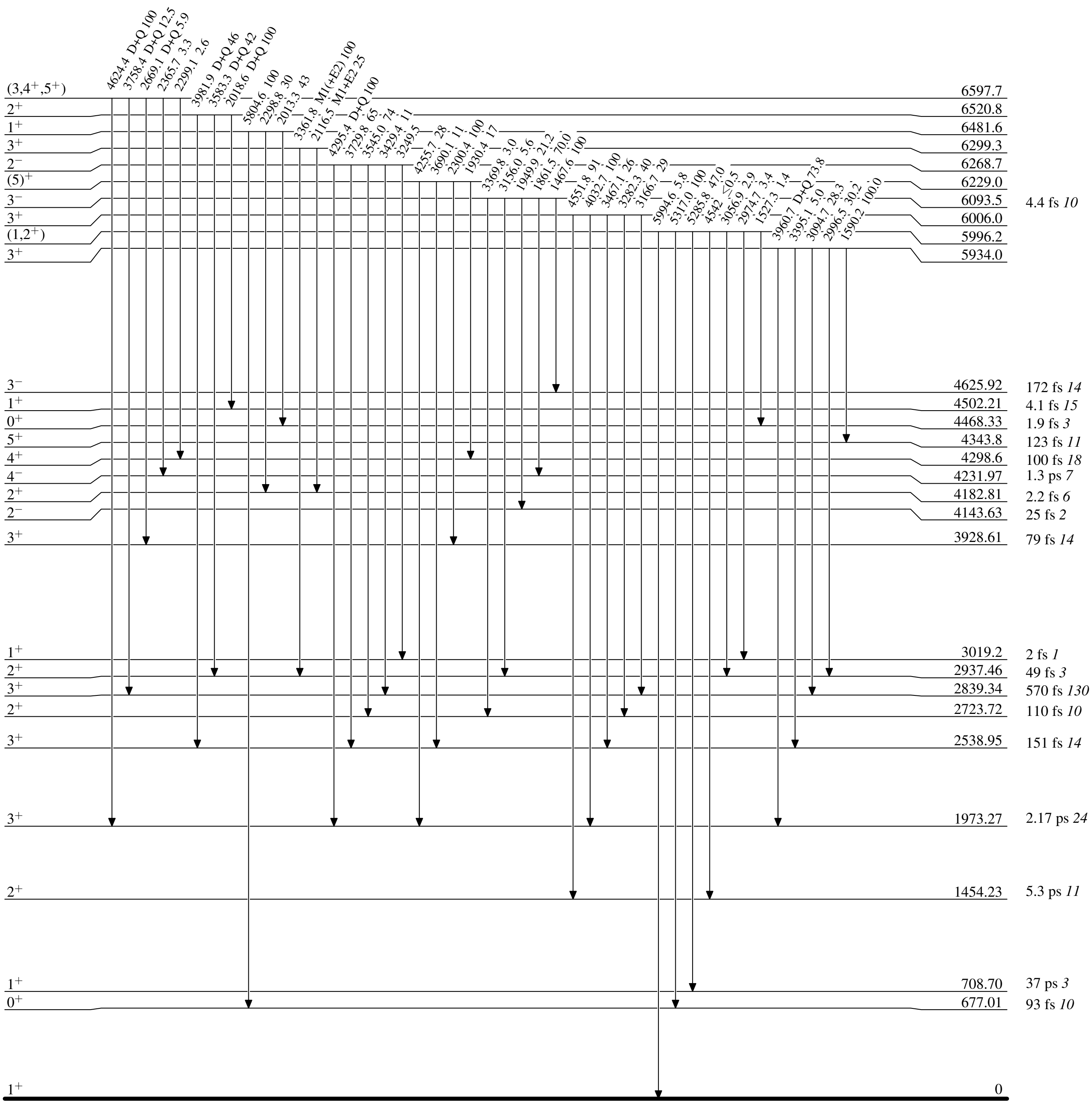


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level

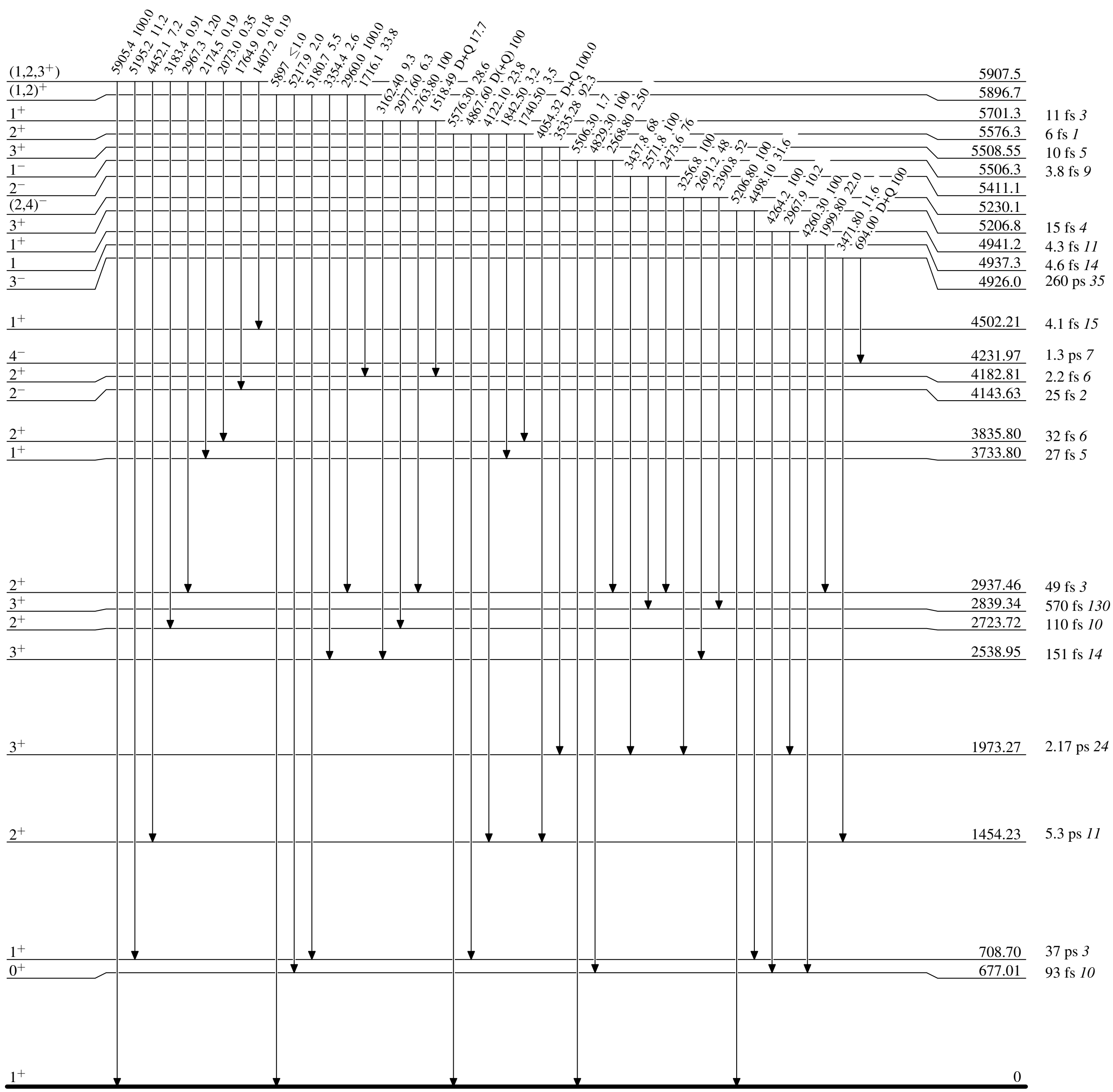


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma)$,$^{27}Al(\alpha,n\gamma)$ **2000Gr19,1985Re02,1969Ha50**

Level Scheme (continued)

Intensities: Relative photon branching from each level

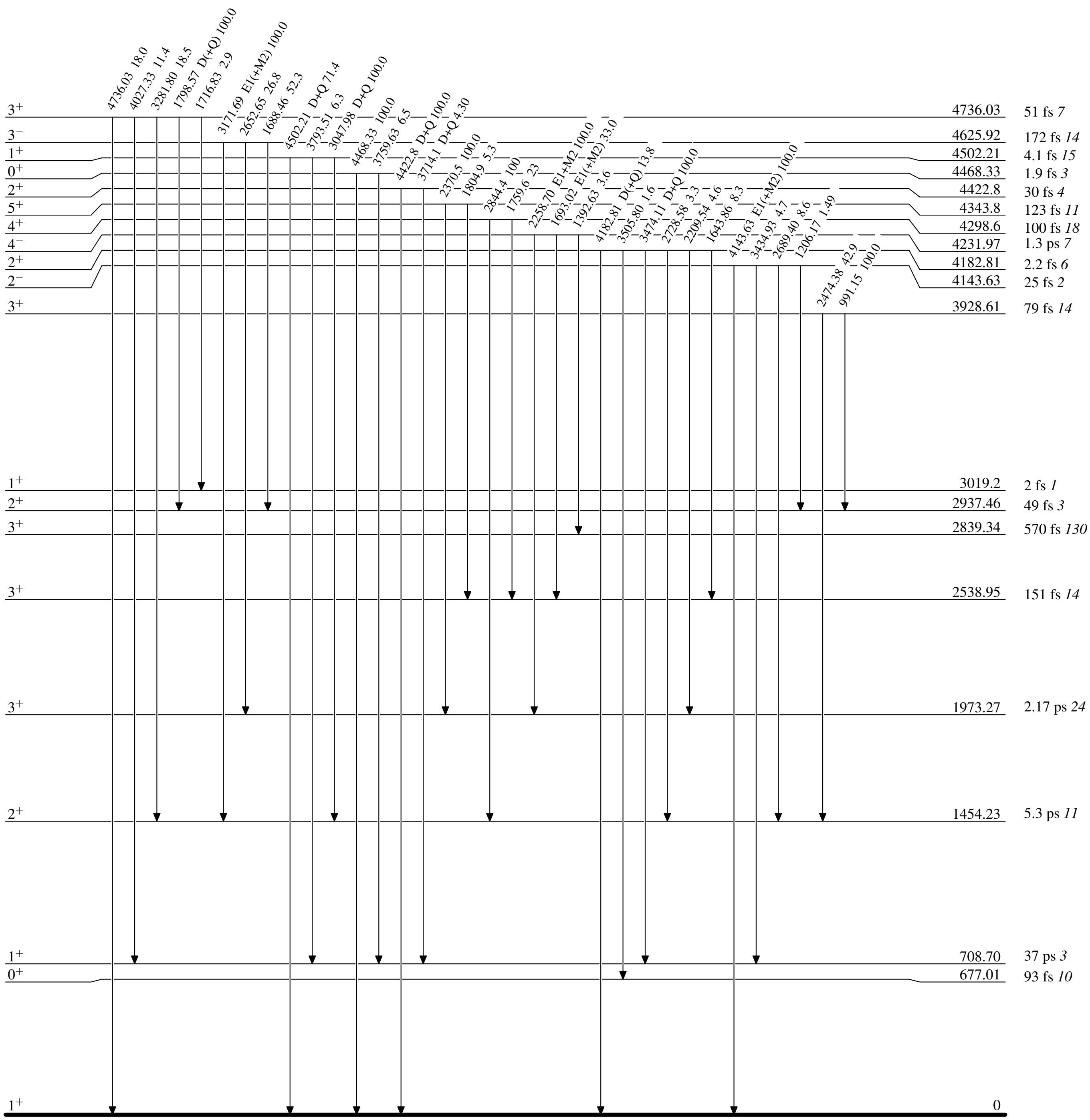


$^{30}_{15}P_{15}$

$^{29}Si(p,\gamma),^{27}Al(\alpha,n\gamma)$ 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{30}_{15}P_{15}$

^{29}Si(p,γ),^{27}Al(α,nγ) 2000Gr19,1985Re02,1969Ha50

Level Scheme (continued)

Intensities: Relative photon branching from each level