

²⁵Mg(p,γ),(p,p) 1988En01,1996Br06,1984Ad07

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia and A. M. Hurst	NDS 134,1 (2016)	1-Feb-2016

Others: 2010Li22,2008Fo04,2006Ar12,2003Fe11,1998Po20,1990Pi01,1988Bo37, 1986En03,1986En04,1985Be17, 1983Ke05,1982De15,1982Ke08,1980Ni10, 1968Ha42,1976Ak01,1974De37.

$J^\pi(^{25}\text{Mg})=5/2^+$.

1988En01: ²⁵Mg(p,γ), E=0.31-1.84 MeV; four Ge detectors; Measured E_γ, I_γ. Enriched targets, Ge detectors.

1996Br06: ²⁵Mg(p,γ) – 86% enriched ²⁵Mg target (thickness 20 μg/cm²) on gold backing, proton beam, E=2-4 MeV, 1.103-, 1.164-, 1.342-MeV; NaI(Tl) detector; Measured E_γ, I_γ, γ yield, Γ(θ), anisotropies, resonance strengths. Deduced levels, J, π, t, δ. Thicker target (50 μg/cm²) was used for thick-target yield of resonances.

1984Ad07: ²⁵Mg(p,p) Target: 99.7% enriched ²⁵Mg target (thickness 0.6-2.0 μg/cm²) evaporated onto 5 μg/cm² carbon foils; Projectile: proton, E=0.70-2.18 MeV, scattered protons were detected by Si surface-barrier at laboratory angles of 90°, 105°, 135°, and 160°; Measured E_p, differential cross sections, deduced L values, spin and parity, Γ_p, spectroscopic factors.

1986En04: ²⁵Mg(p,γ),(p,p) – 98.25% enriched ²⁵Mg target (thickness 5-10 μg/cm²) evaporated onto 0.3 mm thick Na-free Ta backings; Ep=0.031-1.84 MeV; deduced excited levels, resonance strengths, partial widths. Also studied (p,γ) reaction, Ge detector.

²⁶Al Levels

E(level) [†]	T _{1/2} ^b	Comments
0.0		
228.305 13		
416.852 3		
1057.739 12		
1759.034 8	>1.5 ^c ps	
1850.62 7		T _{1/2} : 11 fs 5 (1968Ha42), 28 fs 7 (1974De37), 32.6 fs 35 (1983Ke05).
2068.86 5		T _{1/2} : 263 fs 90 (1968Ha42), 347 fs 120 (1974De37).
2069.47 3		T _{1/2} : 9 fs 4 (1968Ha42), 13 fs 4 (1974De37), 15 fs 2 (1982Ke08).
2071.64 4		T _{1/2} : 390 fs 190 (1968Ha42), 370 fs 140 (1974De37), 510 fs 70 (1983Ke05).
2365.150 18	>0.830 ^c ps	
2545.367 17	0.6 ^c ps 3	
2660.92 5	>0.900 ^c ps	
2740.03 3	28 ^d fs 5	T _{1/2} : Other: 26 fs 9 (1974De37).
2913.40 5	70 ^d fs 5	T _{1/2} : Other: 63 fs 12 (1974De37).
3073.63 4	215 ^d fs 30	T _{1/2} : Other: 104 fs 40 (1974De37).
3159.889 13	5.5 ^d fs 21	T _{1/2} : Others: 10 fs<(1974De37), 6.2 fs 14 (1982Ke08).
3402.65 6	76 ^d fs 10	
3507.63 8	18 ^d fs 6	
3596.34 4	17 ^d fs 3	T _{1/2} : Other: 21 fs 9 (1974De37).
3674.92 5	150 ^d fs 20	T _{1/2} : Other: 180 fs 50 (1974De37).
3680.68 6	8 ^d fs 1	T _{1/2} : Other:<17 fs (1974De37).
3723.79 5	4.2 ^d fs 14	T _{1/2} : Other:<17 fs (1974De37).
3750.90 4	15 ^c fs 6	T _{1/2} : Other: 26 fs 11 (1983Ke05).
3753.63 13	22 ^c fs 11	T _{1/2} : Other: 5 fs 2 (1983Ke05).
3921.96 24		
3962.83 5	37 ^d fs 8	T _{1/2} : Other: 28 fs 9 (1974De37).
3977.91 9	>1.0 ps	
4191.92 6	4.9 ^d fs 21	
4205.86 5	62 ^d fs 10	
4349.34 7	9 ^d fs 3	T _{1/2} : Other:<10 fs (1974De37).
4430.72 6	59 fs 13	
4480.48 9	55 ^d fs 14	T _{1/2} : Other: 76 fs 21 (1974De37).

Continued on next page (footnotes at end of table)

²⁵Mg(p,γ),(p,p) **1988En01,1996Br06,1984Ad07 (continued)**

²⁶Al Levels (continued)

E(level) [†]	J ^π #	T _{1/2} ^b	S ^f	Comments
4547.92	6	<10 ^c fs		
4599.17	5	4.9 ^d fs 21		
4622.38	5	53 ^d fs 18		
4705.37	4	<3.5 ^d fs		T _{1/2} : Other: 10 fs<(1974De37).
4773.35	6	82 ^d fs 12		
4939.64	9	64 ^d fs 19		T _{1/2} : Other: 76 fs 21 (1974De37).
4940.79	5	24 fs 6		
4952.30	4	10 ^d fs 3		
5006.66	16	121 fs 30		
5010.24	7	<6.2 fs		
5131.93	5	<3.5 fs		
5141.68	6	<4.2 fs		
5195.11	12	<24 fs		
5245.28	4	12 ^d fs 3		
5395.53	7	66 ^d fs 50		
5431.23	10	12 fs 6		
5456.71	5	17 fs 4		
5461.87	13	<21 fs		
5487.93	6	17 fs 6		
5494.51	5	<4.9 fs		
5513.48	4	35 ^d fs 4		
5544.56	7	15 ^d fs 13		
5569.16	19			
5584.99	6			
5598.30	6	19 fs 7		
5671.04	7	<28 fs		
5676.07	5	22 ^d fs 10		
5692.15	5	2.8 fs 11		
5726.38	5	<4.9 fs		
5849.21	8	10 fs 6		
5882.65	9	<12 fs		
5916.10	6	<2.1 ^d fs		
5924.19	7	<12 fs		
5949.94	8	<30 fs		
6028.02	4	<4 fs		
6084.07	5	90 fs 20		
6086.47	11	14 fs 11		
6120.01	7	6 ^{+a} 10 fs 3		
6197.56	19	1 ^{(-)a}		
6238.4	3	<7 fs		
6254.06	20			
6270.19	11	<9 fs		
6280.33	9	<14 fs		
6343.46	8	4 ^{(+)a} <6 fs		
6363.99	8	22 fs 11		
6398.64	21			Measured resonance strength ωγ=2.9×10 ⁻¹⁰ eV 6 (2012St02); ωγ<2×10 ⁻⁸ eV (2006Ar12).
6414.46	10			
6436.44	11	5 ^{+a} <17 fs		
6495.94	7	5 ^{+a} <8 fs	8.9×10 ^{-6g} 12	E _p =197.6 keV 5. ωγ=1.1×10 ⁻⁷ eV 2 (2006Ar12).
6550.68	7		6.1×10 ^{-5g} 7	E _p =254.2 keV 5.

Continued on next page (footnotes at end of table)

²⁵Mg(p,γ),(p,p) **1988En01,1996Br06,1984Ad07 (continued)**

²⁶Al Levels (continued)

E(level) [†]	J ^π #	T _{1/2} ^b	L#	Sf	Comments
6598.32 16				6.1×10 ⁻⁴ g 7	E _p =304.1 keV 5. Measured resonance strength ωγ=30.7 meV 17 (2010Li22).
6610.40 6		<0.04 ^e keV		0.43 5	E _p =316.7 keV 5. Γ from 1985Be17. Resonance strength ωγ=30.7 meV 17 (2010Li22); ωγ=21 meV 2 (2006Ar12).
6680.45 7		0.0012 keV 3		0.88 8	E _p =389.6 keV 5. Γ from 1986En04. ωγ=40 meV 4 (2006Ar12).
6695 1					E(level): from 1996Br06. Populated by deexcitation of 9720 level (7 ⁺).
6724.25 7		<0.04 ^e keV		1.57 19	E _p =435.1 keV 5. Γ from 1985Be17. ωγ=71 meV 2 (2006Ar12).
6783.79 5		<0.05 ^e keV		1.04 15	E _p =497.0 keV 5. Γ from 1985Be17.
6789.30 4				0.86 11	E _p =502.8 keV 5.
6801.12 4		0.41 eV 20		0.58 9	E _p =515.1 keV 5. Γ from 1986En04.
6801.60 16		0.34 eV 6		0.23 9	E _p =515.6 keV 5. Γ from 1986En04.
6815.74 10				<4×10 ⁻⁴	
6817.86 9		0.7 eV 3		0.25 2	E _p =532.5 keV 5. Γ from 1986En04.
6851.50 11				3.8 4	E _p =567.4 keV 5.
6874.29 8		0.43 eV 23		0.14 6	E _p =591.2 keV 5. Γ from 1986En04.
6875.73 6				2.60 20	E _p =592.7 keV 5.
6891.70 4				0.017 7	E _p =609.3 keV 5.
6936.20 8				0.39 4	E _p =655.6 keV 5.
6964.48 9				5.6 8	E _p =685.0 keV 5.
7000.91 9				2.2 2	E _p =722.9 keV 5.
7015.01 11		0.18 eV 5		0.37 5	E _p =737.6 keV 5. Γ from 1986En04.
7051.22 7		0.95 eV 11		1.60 13	E _p =775.2 keV 5. Γ from 1986En04.
7085.97 16				1.7 3	E _p =811.4 keV 5.
7092.78 9		0.68 eV 12		0.19 2	E _p =818.5 keV 5.
7108.71 8	(1 to 4) ⁻	0.084 keV 20	1	0.52 4	E _p =835.1 keV 5.
7141.80 5	(1 to 3) ⁻	0.28 keV 5	1	0.69 7	E _p =869.5 keV 5.
7152.84 6	(2,3) ⁺	0.550 keV 25	0	3.9 4	E _p =881.0 keV 5.
7160.97 9	(1 to 4) ⁻	0.180 keV 25	1	0.60 5	E _p =889.5 keV 5.
7167.65 6	(1 to 3) ⁻	0.175 keV 20	1	0.54 5	E _p =896.4 keV 5.
7198.44 12				4.0 4	E _p =928.4 keV 5.
7222.42 9				7.6 7	E _p =953.4 keV 5.
7237.68 5	(1 to 4) ⁻	0.170 keV 25	1	0.75 11	E _p =969.3 keV 5.
7253.6 2	2 ⁻	4.9 keV 5	1	8.7 11	E _p =985.8 keV 5.
7285.62 11				0.041 15	E _p =1019.1 keV 5.
7291.33 9	(2 to 5) ⁺	0.305 keV 15	2	3.1 3	E _p =1025.1 keV 5.
7308.22 5				8.3 7	E _p =1042.7 keV 5.
7347.89 10	(3,4) ⁻	1.8 keV 2	1	5.7 6	E _p =1083.9 keV 5.
7366.25 11				2.8 3	E _p =1103.0 keV 5.
7396.92 5	(2,3) ⁺	0.555 keV 11	0	1.25 12	E _p =1134.9 keV 5.
7398.70 10	3 ⁻	2.36 keV 3	1	5.6 6	E _p =1136.8 keV 5.

Continued on next page (footnotes at end of table)

$^{25}\text{Mg}(\text{p},\gamma),(\text{p},\text{p})$ **1988En01,1996Br06,1984Ad07 (continued)** ^{26}Al Levels (continued)

E(level) [†]	J π #	T _{1/2} ^b	L#	Sf	Comments
7409.62 8	(2 to 4) ⁻	0.62 keV 6	1	4.4 7	E _p =1148.1 keV 5.
7425.07 7	(1 to 4) ⁻	0.345 keV 15	2	2.4 3	E _p =1164.2 keV 5.
7439.50 14				0.05 2	E _p =1179.2 keV 5.
7444.16 16	(1 to 4) ⁻	0.555 keV 10	1	0.39 3	E _p =1184.1 keV 5.
7455.34 19				4.5 4	E _p =1195.7 keV 5.
7464.44 11				5.3 7	E _p =1205.2 keV 5.
7495.38 4	3 ⁺	1.48 keV 2	0	8.3 11	E _p =1237.3 keV 5.
7497 2	2 ⁻	0.75 keV 20	1	1.7 3	E _p =1239 keV 2.
7529.26 5				0.10 4	E _p =1272.6 keV 5.
7539.52 11	2 ⁻	3.3 keV 3	1	3.7 10	E _p =1283.3 keV 5.
7548.20 9				0.21 5	E _p =1292.3 keV 5.
7557.56 25	2 ⁺	0.91 keV 4	0	4.3 8	E _p =1302.1 keV 6.
7561.2 2	2 ⁺	5.0 keV 5	0	13 2	E _p =1305.8 keV 5.
7591.55 10	(0 to 5) ⁺	0.017 keV 4	2	1.0 3	E _p =1337.1 keV 5.
7596.06 12				2.9 3	E _p =1342.1 keV 5.
7604.80 10	2,(3) ⁻	0.62 keV 8	1	1.2 2	E _p =1351.2 keV 5.
7622.68 10				1.4 3	E _p =1369.8 keV 5.
7627.52 12	(0 to 5) ⁺	0.900 keV 3	2	14.9 12	E _p =1374.8 keV 5.
7647.8 4		0.023 keV 14		0.012 3	E _p =1395.9 keV 6. Γ from 1986En04.
7761.84 10	3 ⁻	1.57 keV 2	1	1.2 4	E _p =1514.6 keV 5.
7772.25 6				2.9 4	E _p =1525.4 keV 5.
7773 2	1 ⁻	5.3 keV 8	1	0.07 2	E _p =1526 keV 2.
7813.63 18	1 ⁺	2.7 keV 3	2	1.2 3	E _p =1568.4 keV 5. Γ from 1986En04.
7824.66 15	4,(3) ⁻	0.99 keV 14	1	1.1 3	E _p =1579.9 keV 5.
7831.61 7	(2 to 5) ⁺	0.85 keV 3	2	8.2 10	E _p =1587.2 keV 5.
7865.0 3	2 ⁺	6.6 keV 10	0	3.7 12	E _p =1621.9 keV 6.
7874.29 15	3 ⁺	1.9 keV 2	0	7.2 6	E _p =1631.6 keV 5.
7879.6 3		3.7 keV 4		1.2 2	E _p =1637.1 keV 6. Γ from 1986En04.
7891.17 9	4 ⁺	4.50 keV 14	2	35 3	E _p =1649.1 keV 5.
7921.27 14				0.4 2	E _p =1680.4 keV 5.
7938.79 8	3 ⁺	4.6 keV 3	0	25 3	E _p =1698.7 keV 5.
7953.35 6	(4,5) ⁺	6.82 keV 5	2	38 5	E _p =1713.8 keV 5.
7982 2	2 ⁺	12 keV 2	0	14.8 15	E _p =1744 keV 2.
8000.63 7	1 ⁻	0.71 keV 15	1	1.1 2	E _p =1763.0 keV 5. Γ from 1986En04.
8008.08 9	2 ⁺	0.76 keV 13	0	2.3 4	E _p =1770.8 keV 5.
8011.18 6	5,(3,4) ⁻	0.14 keV 4	3	2.4 8	E _p =1773.9 keV 5.
8035.7 3				0.18 3	E _p =1799.5 keV 6.
8046.64 10	3 ⁻	1.9 keV 3	1	0.9 2	E _p =1810.9 keV 5.
8064 2	2 ⁺	7.3 keV 11	0	7.6 15	E _p =1829 keV 2.
8066 2					E _p =1831 keV 2.
8067.44 9	(5,6) ⁻	0.20 keV 5	3	2.3 7	E _p =1832.5 keV 5.
8116 2	3 ⁺	5.9 keV 9	0		E _p =1883 keV 2.
8130 2	1,(2) ⁻	1.2 keV 2	3		E _p =1898 keV 2.
8131 2	3 ⁻	2.7 keV 4	1		E _p =1899 keV 2.
8164 2	1 ⁻	10.5 keV 16	1		E _p =1933 keV 2.
8174 2	3 ⁺	23 keV 3	0		E _p =1943 keV 2.
8186 2	4,(5) ⁺	0.26 keV 7	2		E _p =1956 keV 2.
8227 2	4 ⁺	0.61 keV 9	2		E _p =1998 keV 2.
8249 2	2 ⁻	11 keV 2	1		E _p =2021 keV 2.
8256 2	4 ⁻	0.25 keV 6	3		E _p =2029 keV 2.
8261 2	3 ⁻	9.6 keV 14	1		E _p =2034 keV 2.

Continued on next page (footnotes at end of table)

²⁵Mg(p,γ),(p,p) **1988En01,1996Br06,1984Ad07 (continued)**

²⁶Al Levels (continued)

E(level) [†]	J ^π #	T _{1/2} ^b	L [#]	S ^f	Comments
8272 2	2 ⁻	8.2 keV 12	1		E _p =2045 keV 2.
8294 2	3 ⁺	25 keV 4	0		E _p =2068 keV 2.
8310 2	2 ⁻	1.5 keV 2	1		E _p =2085 keV 2.
8347 2	3 ⁻	40 keV 6	0		E _p =2123 keV 2.
8531 [‡] 1	4 [@]			1.8 [‡] 4	E _p =2313 keV 1 (1996Br06).
8602 [‡] 1	(5,6) ^{+&}			1.9 [‡] 4	E _p =2387 keV 1 (1996Br06).
8747 [‡] 1	6 ^{+&}			4.4 [‡] 9	E _p =2538 keV 1 (1996Br06).
8924 [‡] 1	4 [@]			19 [‡] 4	E _p =2722 keV 1 (1996Br06).
9060 [‡] 1	4 [@]			6.1 [‡] 12	E _p =2864 keV 1 (1996Br06).
9271 [‡] 1	6 ⁻ ,4 ^{&}				E _p =3083 keV 1 (1996Br06). E(level),J ^π : Doublet with J ^π =6 ⁻ and 4 components (1996Br06). E _p =3083 keV 1 (doublet) (1996Br06).
9286 [‡] 1	5 ^{&}			7.8 [‡] 16	E _p =3099 keV 1 (1996Br06).
9311 [‡] 1	(3 ⁺ ,4) [@]			6.4 [‡] 3	E _p =3125 keV 1 (1996Br06).
9720 [‡] 1	7 ⁺ , (3,4) ^{&}				E(level),J ^π : Doublet with J ^π =7 ⁺ and (3,4) components. 7 ⁺ component populates 6695 keV level. E _p =3550 keV 1 (doublet) (1996Br06).
9986 [‡] 1	7 ^{+&}			8.6 [‡] 17	E _p =3827 keV 1 (1996Br06).

[†] From 1988En01. Listed E_p values are from 1986En04 and 1984Ad07 (Also in Table 26.17 – 1990En08), except otherwise noted.

[‡] From 1996Br06.

From (p,p) (1984Ad07), except noted otherwise, based on cross section measurements and analyses.

@ From 1996Br06, based on I_γ(0°)/I(75°) measurements.

& From 1996Br06, based on σ_g(THETA) measurements.

^a From 1996Br06, based on γ-ray angular distribution measurements, feeding, and other studies in the literature.

^b Half-life or Γ. Half-life from 1988En01 and Γ from 1984Ad07, except otherwise noted. Listed Γ from 1984Ad07 is Γ_p+Γ_γ.

^c From 1974De37.

^d From 1983Ke05.

^e For these levels Γ₀/Γ=1 is probable on the basis of strength statistics.

^f From 1986En04, except otherwise noted.

^g From 1990Il01.

γ(²⁶Al)

E _i (level)	E _γ [†]	I _γ [‡]	E _f	E _i (level)	E _γ [†]	I _γ [‡]	E _f
416.852	416.848	100.0	0.0	2071.64	1842.8 7	100.0 10	228.305
1057.739	829.3 4	100.0	228.305	2365.150	295.678	100.0 20	2069.47
1759.034	701.285	2.04 10	1057.739		606.108	2.90 10	1759.034
	1342.145	100.00 10	416.852		1307.375	26.9 8	1057.739
1850.62	1433.73	0.70 10	416.852		1948.219	64.7 20	416.852
	1622.0 7	100.00 10	228.305		2365.034	1.75 8	0.0
2068.86	1651.95	100.0 15	416.852	2545.367	475.892	100.0 15	2069.47
	2068.77	44.9 15	0.0		786.320	4.9 3	1759.034
2069.47	218.85	0.053 13	1850.62		1487.582	3.7 3	1057.739
	310.43	0.23 3	1759.034		2128.421	38.2 15	416.852
	1011.71	100.0 12	1057.739		2545.232	0.31 9	0.0
	1652.56	28.4 11	416.852	2660.92	589.27	5.6 13	2071.64
	1841.09	4.0 5	228.305		591.44	41.0 16	2069.47
2071.64	221.02	0.045 11	1850.62		810.29	2.5 3	1850.62
	1654.73	11.9 10	416.852		901.87	1.02 8	1759.034

Continued on next page (footnotes at end of table)

²⁵Mg(p,γ),(p,p) 1988En01,1996Br06,1984Ad07 (continued)

γ(²⁶Al) (continued)

<u>E_i(level)</u>	<u>E_γ[†]</u>	<u>I_γ[‡]</u>	<u>E_f</u>	<u>E_i(level)</u>	<u>E_γ[†]</u>	<u>I_γ[‡]</u>	<u>E_f</u>
2660.92	1603.13	14.8 5	1057.739	3750.90	2693.01	13.9 4	1057.739
	2243.96	100 3	416.852		3333.82	9.0 12	416.852
2740.03	2323.07	0.81 20	416.852	3753.63	1013.58	2.2 3	2740.03
	2511.59	100.00 20	228.305		1681.93	11.0 3	2071.64
2913.40	843.92	100.0 13	2069.47		1902.93	3.0 4	1850.62
	1062.76	1.55 6	1850.62		2695.74	100.0 5	1057.739
	1154.34	1.17 6	1759.034	3921.96	3921.64	100.0	0.0
	1855.59	1.17 6	1057.739	3962.83	1222.77	0.7 3	2740.03
	2496.42	43.7 13	416.852		1301.88	2.1 10	2660.92
3073.63	1004.14	100.0 6	2069.47		1597.63	4.9 4	2365.150
	1222.98	3.23 10	1850.62		1893.29	100.0 14	2069.47
	1314.56	0.44 5	1759.034		2112.12	2.3 3	1850.62
	2015.81	14.7 5	1057.739		2203.70	3.1 4	1759.034
	2656.63	0.60 24	416.852		2904.92	15.9 6	1057.739
	3073.43	0.95 11	0.0		3545.72	5.6 4	416.852
3159.889	614.514	2.24 8	2545.367		3962.50	7.9 4	0.0
	794.726	0.35 8	2365.150	3977.91	1906.19	1.5 3	2071.64
	1088.224	4.25 13	2071.64		2127.20	100.0 16	1850.62
	1309.233	0.55 5	1850.62		2919.99	59.7 16	1057.739
	1400.814	23.1 6	1759.034	4191.92	595.57	1.50 12	3596.34
	2102.058	25.7 8	1057.739		1278.49	0.66 7	2913.40
	2742.881	100.0 11	416.852		1530.95	0.9 3	2660.92
	2931.406	0.69 8	228.305		1646.50	3.57 17	2545.367
3402.65	1037.48	0.84 11	2365.150		1826.70	15.8 9	2365.150
	1333.75	9.3 4	2068.86		2122.97	40.6 12	2068.86
	2985.61	100.0 18	416.852		2432.76	6.6 3	1759.034
	3402.41	64.9 18	0.0		3774.77	100.0 15	416.852
3507.63	1438.73	0.32 7	2068.86		4191.56	0.41 10	0.0
	3507.37	100.00 10	0.0	4205.86	530.93	0.061 15	3674.92
3596.34	1526.82	100.00 22	2069.47		1132.20	0.79 5	3073.63
	1745.66	1.07 7	1850.62		1292.43	0.95 8	2913.40
	2538.47	3.48 11	1057.739		1544.89	12.3 8	2660.92
	3179.28	0.20 4	416.852		1660.44	4.8 3	2545.367
	3596.07	4.02 22	0.0		1840.64	10.3 8	2365.150
3674.92	1129.53	3.5 4	2545.367		2136.91	16.1 11	2068.86
	1309.73	14.2 7	2365.150		2446.70	1.67 11	1759.034
	1606.01	1.75 18	2068.86		3788.71	100.0 15	416.852
	1915.81	48.0 14	1759.034		4205.49	4.4 3	0.0
	3257.85	100.0 16	416.852	4349.34	2279.76	100.0 6	2069.47
	3674.64	7.7 4	0.0		2590.17	0.85 10	1759.034
3680.68	520.79	0.28 4	3159.889		3291.38	1.90 20	1057.739
	767.27	0.13 5	2913.40		3932.17	2.8 6	416.852
	1611.16	100.00 21	2069.47		4348.95	0.64 11	0.0
	1829.99	0.19 4	1850.62	4430.72	1270.80	5.7 5	3159.889
	1921.57	1.23 6	1759.034		1885.28	1.6 5	2545.367
	2622.80	2.79 21	1057.739		2065.48	3.0 10	2365.150
	3263.61	1.77 8	416.852		2361.13	100 5	2069.47
	3680.40	0.77 8	0.0		2579.96	1.0 5	1850.62
3723.79	1062.87	0.35 9	2660.92		2671.54	4.8 10	1759.034
	2665.92	0.44 9	1057.739		3372.74	1.1 3	1057.739
	3495.25	100.00 10	228.305		4013.53	48 5	416.852
3750.90	591.00	23.2 14	3159.889	4480.48	1740.39	37.0 14	2740.03
	837.49	0.57 10	2913.40		2408.72	100.0 23	2071.64
	1385.71	0.19 10	2365.150		2629.72	77.3 23	1850.62
	1681.37	100 3	2069.47		3422.50	11.8 11	1057.739
	1900.20	0.39 10	1850.62	4547.92	867.22	0.48 6	3680.68
	1991.78	0.28 9	1759.034		1634.46	1.00 8	2913.40

Continued on next page (footnotes at end of table)

$^{25}\text{Mg}(\text{p},\gamma),(\text{p},\text{p})$ **1988En01,1996Br06,1984Ad07 (continued)** $\gamma(^{26}\text{Al})$ (continued)

$E_i(\text{level})$	E_γ^\dagger	I_γ^\ddagger	E_f	$E_i(\text{level})$	E_γ^\dagger	I_γ^\ddagger	E_f
4547.92	1807.82	1.48 10	2740.03	4939.64	2870.00	6.1 15	2069.47
	1886.93	0.42 10	2660.92		3088.82	1.0 4	1850.62
	2002.47	11.0 4	2545.367		3180.40	0.63 25	1759.034
	2182.67	6.87 21	2365.150		3881.59	1.5 5	1057.739
	2476.15	2.71 13	2071.64		4710.87	100.0 13	228.305
	2697.15	0.17 6	1850.62	4940.79	1265.84	0.56 19	3674.92
	2788.72	14.6 4	1759.034		1433.12	3.33 19	3507.63
	3489.93	100.0 21	1057.739		1867.09	0.46 15	3073.63
	4130.71	68.8 21	416.852		2395.30	39.8 15	2545.367
	4319.23	1.19 10	228.305		2575.50	38.1 11	2365.150
4599.17	848.26	3.8 4	3750.90		2871.76	1.3 4	2068.86
	918.47	1.66 10	3680.68		4523.51	100.0 19	416.852
	924.23	6.5 4	3674.92		4940.28	2.0 4	0.0
	1525.49	2.10 21	3073.63	4952.30	760.37	2.3 4	4191.92
	1685.71	7.1 4	2913.40		1792.34	100.0 18	3159.889
	1938.17	13.8 6	2660.92		2038.81	1.58 18	2913.40
	2053.72	10.5 4	2545.367		2212.17	1.75 18	2740.03
	2233.92	5.45 21	2365.150		2406.81	1.1 4	2545.367
	2530.18	5.45 21	2068.86		2882.66	44.0 14	2069.47
	2839.97	100.0 19	1759.034		3101.48	4.6 4	1850.62
	4181.95	53.0 17	416.852		3894.25	3.3 4	1057.739
4622.38	1462.45	3.4 6	3159.889		4535.02	16.5 5	416.852
	1548.70	14.1 13	3073.63	5006.66	2093.17	4.2 8	2913.40
	1882.28	100 3	2740.03		2266.52	3.5 8	2740.03
	1961.38	60.0 16	2660.92		2345.63	3.5 9	2660.92
	2076.92	6.6 19	2545.367		2937.01	100 3	2069.47
	2257.12	3.8 9	2365.150		3155.83	2.9 12	1850.62
	2552.77	57.2 25	2069.47		3247.41	10.8 15	1759.034
	2771.60	28.4 22	1850.62		3948.60	29.2 15	1057.739
	3564.38	4.7 9	1057.739	5010.24	1256.58	2.4 8	3753.63
	4205.16	35.9 25	416.852		4781.46	100.0 8	228.305
4705.37	1024.67	0.9 4	3680.68	5131.93	782.58	0.72 7	4349.34
	1631.68	1.1 4	3073.63		926.05	1.17 5	4205.86
	2159.91	27.9 9	2545.367		939.99	0.200 20	4191.92
	2340.11	44.7 14	2365.150		1169.07	4.5 13	3962.83
	2636.37	1.05 18	2068.86		1451.21	1.01 15	3680.68
	4288.14	0.53 18	416.852		1456.97	0.27 5	3674.92
	4704.91	100.0 18	0.0		1535.54	9.20 20	3596.34
4773.35	581.42	13.7 10	4191.92		1729.22	11.2 5	3402.65
	1092.65	1.27 10	3680.68		1971.96	0.61 7	3159.889
	1098.41	0.40 10	3674.92		2058.21	42.8 13	3073.63
	1176.98	0.87 13	3596.34		2586.42	2.17 16	2545.367
	1370.66	2.0 7	3402.65		2766.62	100.0 20	2365.150
	1699.66	11.7 7	3073.63		3062.27	11.4 22	2069.47
	1859.88	19.3 7	2913.40		3062.88	35.9 22	2068.86
	2112.34	87 3	2660.92		3372.66	0.110 20	1759.034
	2227.88	18.0 7	2545.367		4714.62	1.40 20	416.852
	2408.08	27.0 10	2365.150		5131.38	0.94 7	0.0
	2704.34	10.0 10	2068.86	5141.68	1178.82	1.6 3	3962.83
	3014.13	1.3 3	1759.034		1545.29	1.7 4	3596.34
	4356.10	100 3	416.852		2776.37	0.86 12	2365.150
	4772.88	40.3 17	0.0		3069.84	1.0 4	2071.64
4939.64	1185.98	5.25 25	3753.63		3382.41	14.8 12	1759.034
	1779.69	1.3 4	3159.889		4083.59	3.6 5	1057.739
	2199.51	0.6 4	2740.03		4724.36	100.0 25	416.852
	2278.61	1.0 3	2660.92	5195.11	1471.25	35.7 24	3723.79
	2867.83	7.1 15	2071.64		3123.27	100 7	2071.64

Continued on next page (footnotes at end of table)

$^{25}\text{Mg}(p,\gamma),(p,p)$ **1988En01,1996Br06,1984Ad07** (continued) $\gamma(^{26}\text{Al})$ (continued)

$E_i(\text{level})$	E_γ^\dagger	I_γ^\ddagger	E_f	$E_i(\text{level})$	E_γ^\dagger	I_γ^\ddagger	E_f
5195.11	3344.26	21.4 24	1850.62	5456.71	5039.33	100 8	416.852
	4137.02	81 7	1057.739	5461.87	2301.87	26 9	3159.889
5245.28	539.90	5.9 4	4705.37		2548.34	87 17	2913.40
	895.92	0.70 9	4349.34		2721.69	74 13	2740.03
	1039.40	0.93 11	4205.86		2800.79	35 9	2660.92
	1053.34	100.0 22	4191.92		3610.98	35 13	1850.62
	1282.42	3.91 22	3962.83		3702.55	100 13	1759.034
	1494.33	0.17 7	3750.90		4403.73	78 13	1057.739
	1564.55	0.93 9	3680.68	5487.93	2085.19	5.3 19	3402.65
	1570.31	0.41 11	3674.92		2414.18	100 5	3073.63
	1648.88	4.6 11	3596.34		3122.58	14 3	2365.150
	1737.59	0.54 9	3507.63		3418.83	22 3	2068.86
	1842.56	3.3 11	3402.65		5487.30	16 3	0.0
	2171.55	11.3 4	3073.63	5494.51	946.57	2.42 22	4547.92
	2331.77	12.2 4	2913.40		1898.09	3.1 10	3596.34
	2584.22	6.30 20	2660.92		2334.51	4.7 6	3159.889
	2699.76	5.4 4	2545.367		3424.80	100.0 11	2069.47
	2879.96	19.8 7	2365.150	5513.48	381.55	0.70 14	5131.93
	3175.60	8.3 4	2069.47		808.10	1.62 16	4705.37
	3485.99	16.1 7	1759.034		1164.11	3.11 19	4349.34
	4827.94	8.5 4	416.852		1321.52	100 3	4191.92
	5244.71	7.8 4	0.0		1762.52	0.78 19	3750.90
5395.53	773.14	0.85 11	4622.38		1917.06	1.1 3	3596.34
	796.35	4.13 22	4599.17		2599.94	2.89 22	2913.40
	1203.58	13.3 4	4191.92		2852.39	1.97 22	2660.92
	1720.55	0.33 9	3674.92		2967.93	1.97 24	2545.367
	1799.12	6.52 22	3596.34		3148.12	16.5 5	2365.150
	1992.80	0.24 11	3402.65		3444.37	11.6 5	2068.86
	2321.79	4.13 22	3073.63		3754.15	71.9 22	1759.034
	2849.99	2.83 22	2545.367		5096.09	25.7 11	416.852
	3030.19	7.83 22	2365.150		5512.85	30.3 11	0.0
	3326.44	4.57 22	2068.86	5544.56	1581.68	6.4 11	3962.83
	4978.16	100.0 22	416.852		1793.59	71 4	3750.90
	5394.93	71.7 22	0.0		1820.68	4.3 14	3723.79
5431.23	883.29	2.33 21	4547.92		1948.14	18 4	3596.34
	950.73	0.82 21	4480.48		2470.80	7.1 14	3073.63
	1677.54	79 9	3753.63		2631.02	16 3	2913.40
	2770.15	1.5 3	2660.92		2883.47	7.9 14	2660.92
	3359.36	36 15	2071.64		2999.01	8.6 18	2545.367
	3361.53	100 15	2069.47		3179.20	48 3	2365.150
	3580.34	18.8 6	1850.62		3472.67	8.6 14	2071.64
	3671.92	2.4 3	1759.034		3693.66	3.2 11	1850.62
	4373.09	82 6	1057.739		3785.23	40.7 25	1759.034
	5202.36	55.8 18	228.305		4486.40	10.0 18	1057.739
5456.71	751.33	1.1 3	4705.37		5127.16	100 7	416.852
	908.77	15.3 8	4547.92		5315.67	5.7 14	228.305
	1705.75	1.4 6	3750.90	5569.16	863.77	23 7	4705.37
	1775.96	1.4 6	3680.68		3500.05	39 11	2068.86
	1781.72	1.4 6	3674.92		5568.52	100 13	0.0
	1860.30	1.1 3	3596.34	5584.99	1037.05	7.2 4	4547.92
	2296.71	14.4 8	3159.889		1831.29	2.8 4	3753.63
	2382.96	15.6 8	3073.63		2424.98	1.2 4	3159.889
	2795.63	53.3 25	2660.92		2671.44	3.0 4	2913.40
	2911.17	3.3 6	2545.367		3825.65	1.6 5	1759.034
	3091.36	6.1 6	2365.150		5356.09	100.0 8	228.305
	3387.00	27.5 11	2069.47	5598.30	2438.29	100 8	3159.889
	3697.39	18.3 8	1759.034		3528.57	78 8	2069.47

Continued on next page (footnotes at end of table)

$^{25}\text{Mg}(p,\gamma),(p,p)$ **1988En01,1996Br06,1984Ad07** (continued)

$\gamma(^{26}\text{Al})$ (continued)

$E_i(\text{level})$	E_γ^\dagger	I_γ^\ddagger	E_f	$E_i(\text{level})$	J_i^\ddagger	E_γ^\dagger	I_γ^\ddagger	E_f
5598.30	5180.89	73 8	416.852	5882.65		4123.26	7 3	1759.034
5671.04	1917.33	100 4	3753.63			5465.18	32.6 23	416.852
	1990.28	6.5 16	3680.68	5916.10		774.41	2.7 5	5141.68
	2511.02	46.9 20	3159.889			1724.12	14.5 9	4191.92
	4612.86	15.9 24	1057.739			2165.10	5 3	3750.90
	5253.61	11.8 18	416.852			2756.05	7.5 9	3159.889
	5442.12	22 4	228.305			3002.51	4.3 9	2913.40
5676.07	1076.88	3.56 18	4599.17			3550.69	3.6 9	2365.150
	1484.10	15.6 4	4191.92			3846.32	48.6 16	2069.47
	1995.31	3.02 18	3680.68			4065.14	10.7 25	1850.62
	2001.07	0.49 18	3674.92			4156.71	15.0 11	1759.034
	3130.50	7.78 22	2545.367			4857.87	14 5	1057.739
	3310.69	1.76 18	2365.150			5498.62	100 5	416.852
	3606.94	0.84 16	2068.86	5924.19		2243.41	40 6	3680.68
	5258.64	100.0 22	416.852			2521.41	7.3 13	3402.65
	5675.40	88.9 22	0.0			3378.59	100 6	2545.367
5692.15	550.46	0.52 16	5141.68			3855.02	23 4	2068.86
	1092.96	0.55 18	4599.17			5923.46	38 4	0.0
	1144.20	0.48 20	4547.92	5949.94		2196.20	47 6	3753.63
	1486.24	0.95 18	4205.86			2789.88	100 9	3159.889
	1500.18	41.6 14	4191.92			3880.15	50 9	2069.47
	2011.39	4.1 3	3680.68			5720.95	32 6	228.305
	2095.72	0.66 14	3596.34	6028.02		1021.34	2.5 5	5006.66
	2532.13	37.5 11	3159.889			1088.36	12.3 14	4939.64
	2618.38	1.57 20	3073.63			2050.02	2.0 7	3977.91
	3031.04	0.70 20	2660.92			2277.01	8.0 20	3750.90
	3622.41	0.70 18	2069.47			2304.10	50.2 16	3723.79
	3932.79	37.3 11	1759.034			3114.42	35.0 11	2913.40
	5274.72	100.0 23	416.852			3287.77	8.0 16	2740.03
5726.38	1377.00	2.2 3	4349.34			3956.05	6.6 14	2071.64
	1763.49	16.5 8	3962.83			4268.61	2.7 11	1759.034
	2051.37	1.9 3	3674.92			4969.77	100 5	1057.739
	2129.95	6.5 5	3596.34	6084.07		688.53	1.29 13	5395.53
	2323.62	22 3	3402.65			1310.68	1.32 16	4773.35
	3361.00	13.5 5	2365.150			1378.66	15.9 7	4705.37
	3657.24	16.2 8	2068.86			2409.03	19.6 18	3674.92
	5308.94	89 3	416.852			2576.30	13.9 5	3507.63
	5725.70	100 3	0.0			4014.87	100 4	2068.86
5849.21	707.52	6.5 13	5141.68			6083.30	27.0 9	0.0
	1301.25	17.5 19	4547.92	6086.47		4016.67	66 21	2069.47
	1657.23	31 4	4191.92			4235.48	62 21	1850.62
	2935.63	15 6	2913.40			4327.05	34 10	1759.034
	3108.98	6.7 19	2740.03			5857.45	100 21	228.305
	3779.44	100 6	2069.47	6120.01	6 ⁺	2444.97	9.0 12	3674.92
	4089.83	15 4	1759.034			2717.21	38.2 15	3402.65
	5431.75	17 4	416.852			4050.81	100.0 15	2068.86
5882.65	740.96	5.3 23	5141.68	6197.56	1 ⁽⁻⁾	5968.51	100.0	228.305
	750.71	5.1 23	5131.93	6238.4		1096.7	27.9 25	5141.68
	1177.25	5.3 19	4705.37			1690.4	36.4 25	4547.92
	1260.24	7.2 16	4622.38			1807.6	4.6 14	4430.72
	1283.45	5.3 12	4599.17			2260.4	25 7	3977.91
	1334.69	100 5	4547.92			2484.6	18.2 25	3753.63
	1690.67	4.0 16	4191.92			2514.5	1.8 11	3723.79
	2722.61	21.6 16	3159.889			3078.3	4.6 18	3159.889
	2808.86	2.3 9	3073.63			3324.8	4.3 14	2913.40
	3812.88	27.0 16	2069.47			3498.1	14 7	2740.03
	4031.69	9.5 14	1850.62			4168.6	100 4	2069.47

Continued on next page (footnotes at end of table)

$^{25}\text{Mg}(\text{p},\gamma),(\text{p},\text{p})$ **1988En01,1996Br06,1984Ad07 (continued)**

$\gamma(^{26}\text{Al})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f
6238.4		4387.4	6.4 21	1850.62	6436.44	5 ⁺	6018.84	49 8	416.852
		4478.9	8.2 21	1759.034	6495.94	5 ⁺	769.5	11.5@ 23	5726.38
		5180.1	50 4	1057.739			1790.5	20.9@ 21	4705.37
		6009.3	54 4	228.305			3093.1	45@ 4	3402.65
6270.19		1075.06	9 3	5195.11			3422.0	15.8@ 21	3073.63
		3110.10	22 3	3159.889			3950.2	2.9@ 10	2545.367
		6041.13	100 5	228.305			4130.4	3.1@ 10	2365.150
6280.33		1138.62	37 17	5141.68			6078.2	100@ 4	416.852
		1148.37	29 14	5131.93			6494.9	6.2@ 21	0.0
		1681.10	29 11	4599.17	6610.40		694.5	0.28# 6	5916.10
		2088.32	66 11	4191.92			884.5	0.31# 3	5726.38
		3120.24	100 23	3159.889			1153.5		5456.71
		4210.49	26 11	2069.47			1214.5	0.69# 6	5395.53
6343.46	4 ⁽⁺⁾	1211.50	14.6 15	5131.93			1670.4	0.25# 3	4939.64
		1638.03	8.3 22	4705.37			1988.4	0.88# 22	4622.38
		1744.23	100 4	4599.17			2011.4	0.38# 3	4599.17
		2151.44	30.4 22	4191.92			2062.4	4.09# 22	4547.92
		3269.61	11.1 24	3073.63			2261.4	0.09# 3	4349.34
		3797.79	28.3 22	2545.367			2404.4	0.79# 6	4205.86
		3977.98	8.3 11	2365.150			2418.4	60.1# 9	4191.92
		4274.22	18.9 11	2068.86			2647.4	0.53# 3	3962.83
6363.99		2158.03	26 7	4205.86			2860.3	2.89# 6	3750.90
		2171.97	6 4	4191.92			2929.3	3.43# 9	3680.68
		2612.95	23 3	3750.90			2935.3	2.7# 4	3674.92
		2683.16	48 4	3680.68			3014.3	13.49# 22	3596.34
		2688.92	44 15	3674.92			3450.3	35.9# 6	3159.889
		3818.32	19 7	2545.367			3537.2	0.35# 13	3073.63
		3998.51	30 7	2365.150			3697.2	9.56# 16	2913.40
		4294.75	30 7	2068.86			3949.2	3.14# 6	2660.92
		4604.52	100 11	1759.034			4065.2	4.59# 9	2545.367
		5946.40	44 7	416.852			4245.1	1.48# 6	2365.150
6414.46		4563.41	100 17	1850.62			4541.1	18.9# 3	2068.86
		5356.13	67 17	1057.739			4851.0	50.6# 9	1759.034
6436.44	5 ⁺	1304.47	100 10	5131.93			6192.7	100.0# 16	416.852
		1731.01	90 8	4705.37			6609.6	0.18# 1	0.0
		4367.18	18 5	2068.86	6695		3187		3507.63

† From level energy difference with recoil-correction removed.

‡ From 1988En01, except otherwise noted.

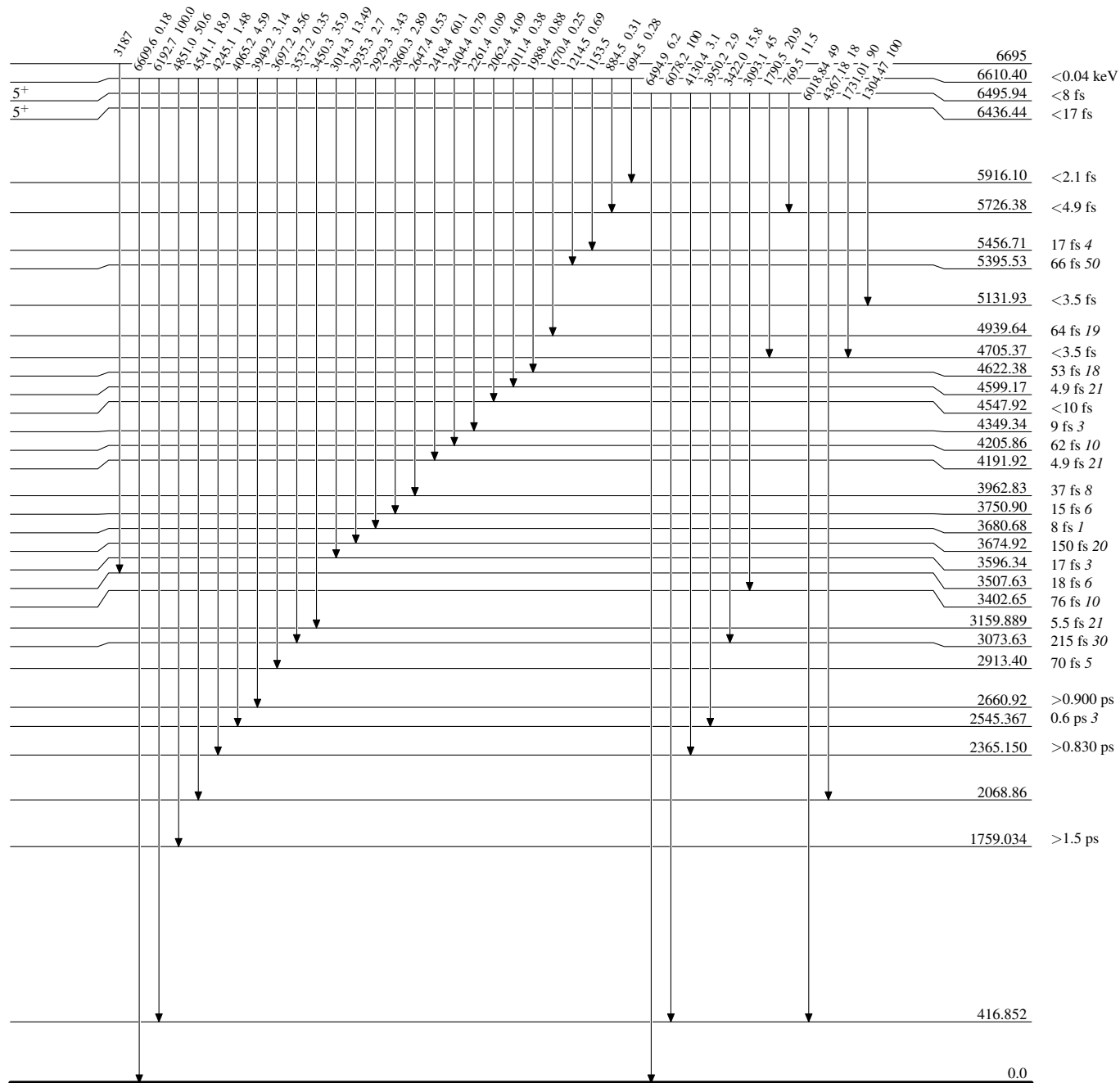
From 2011Li22.

@ From 2012St02.

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme

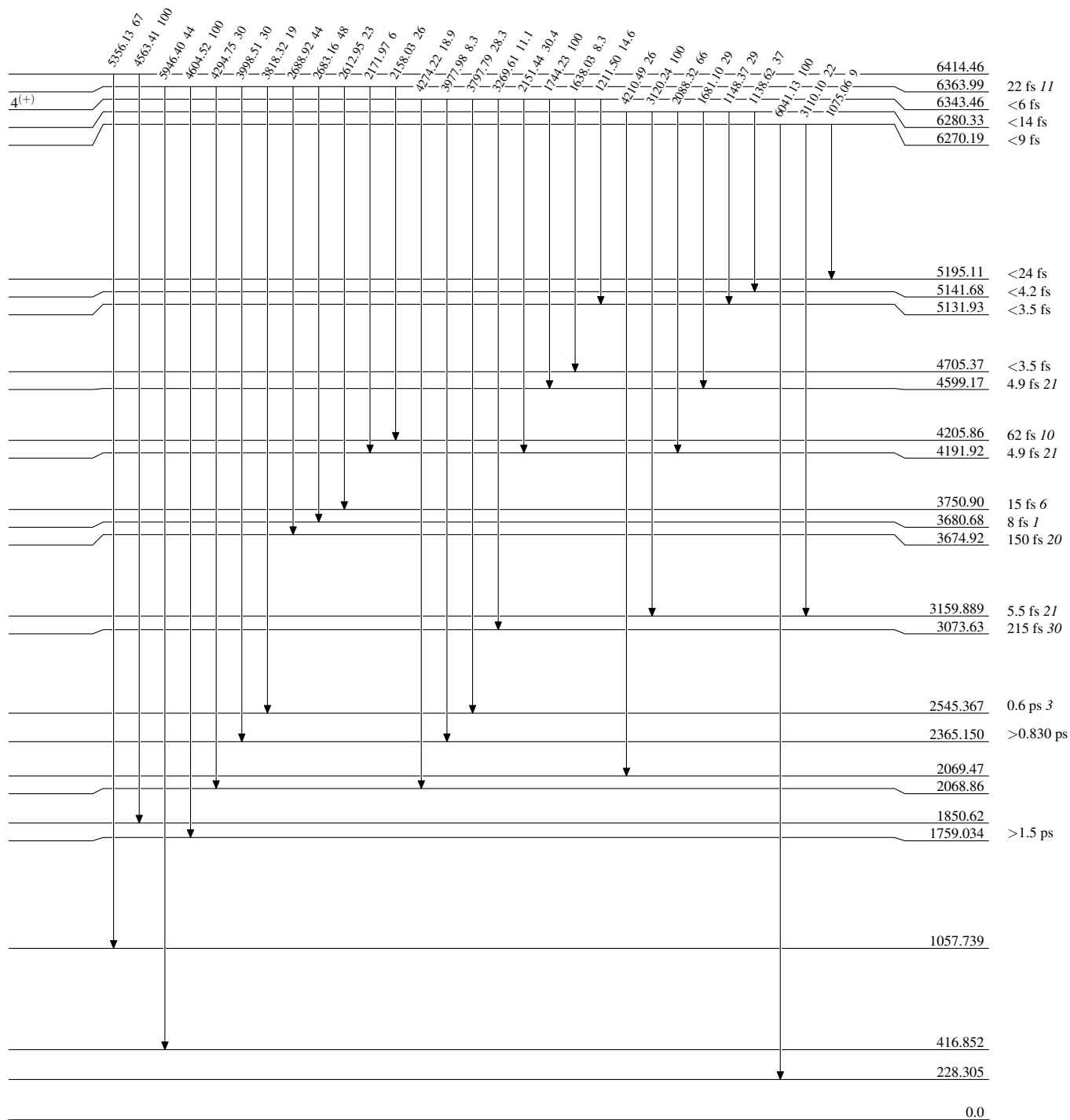
Intensities: Relative photon branching from each level

 $^{26}_{13}\text{Al}_{13}$

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

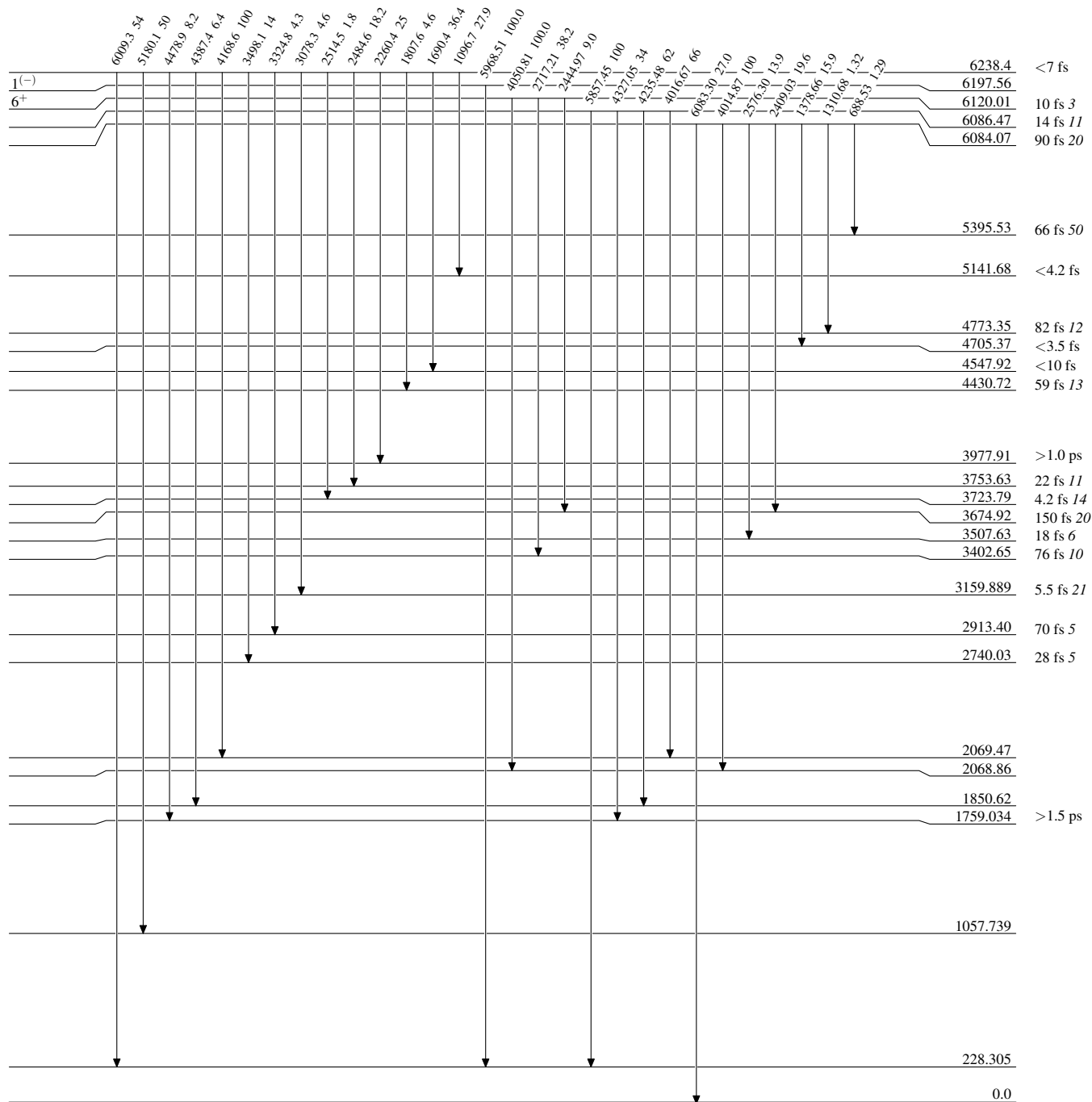
Intensities: Relative photon branching from each level



$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

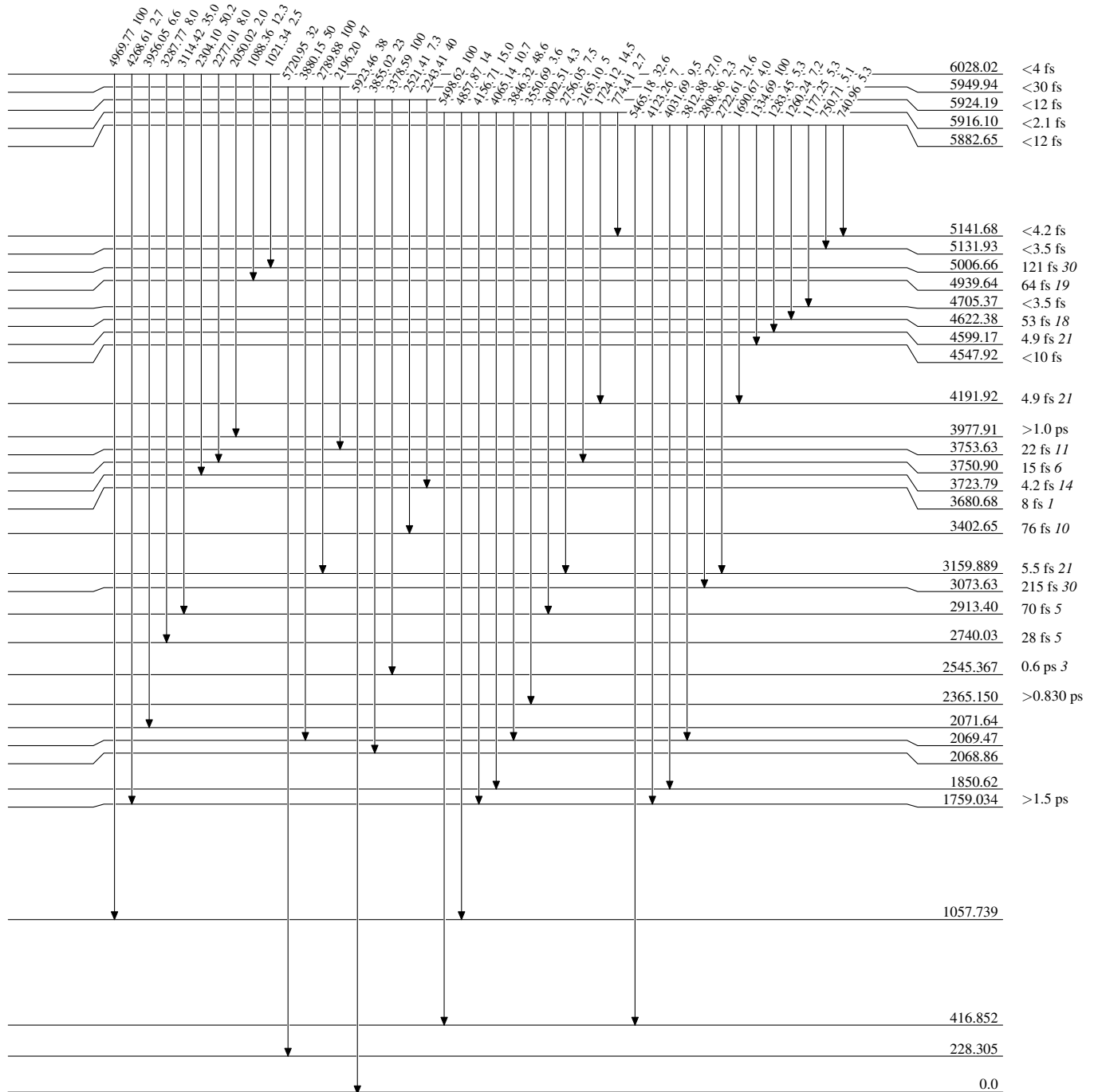


$^{26}_{13}\text{Al}_{13}$

²⁵Mg(p,γ),(p,p) 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

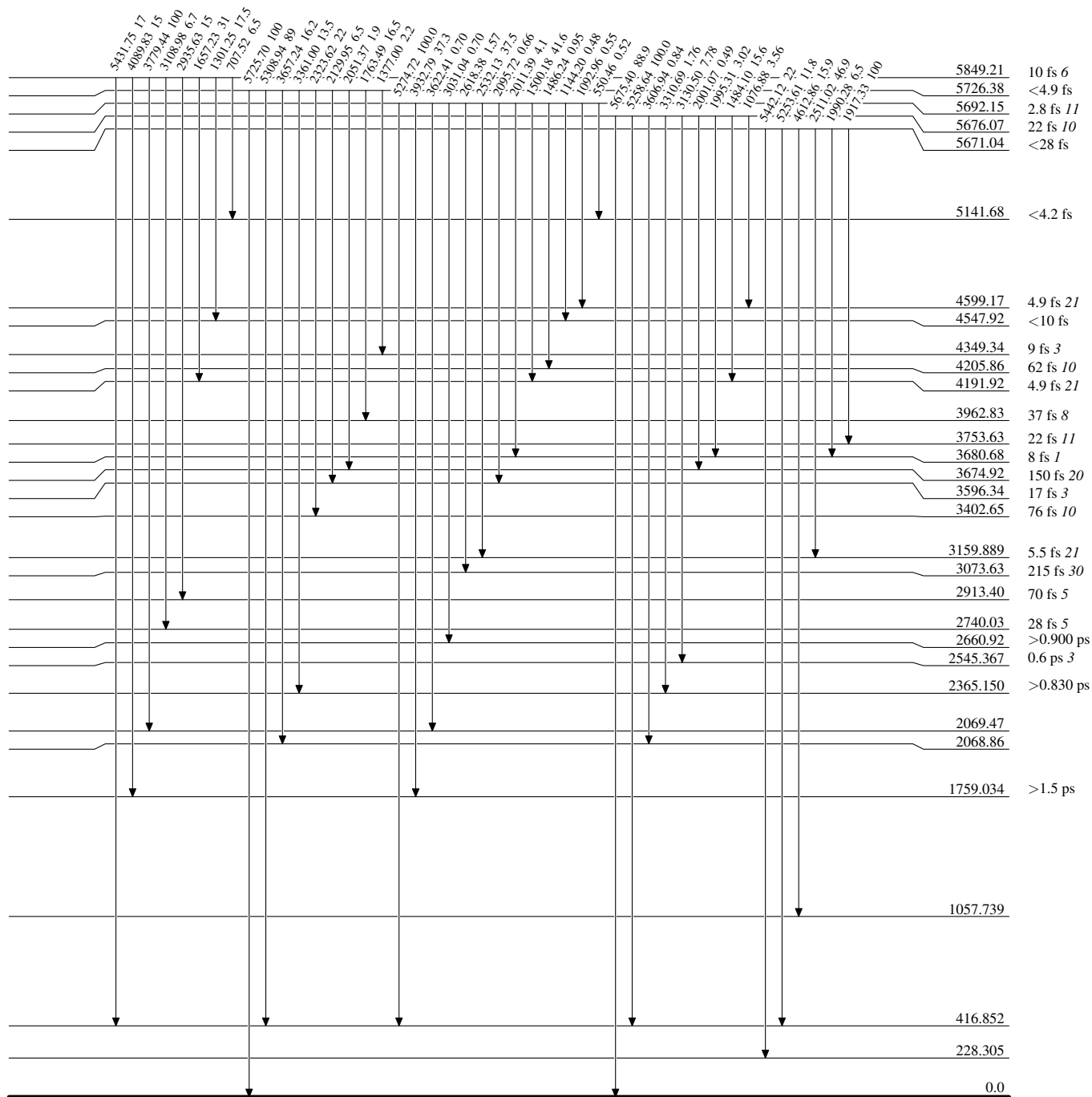


²⁶Al₁₃

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

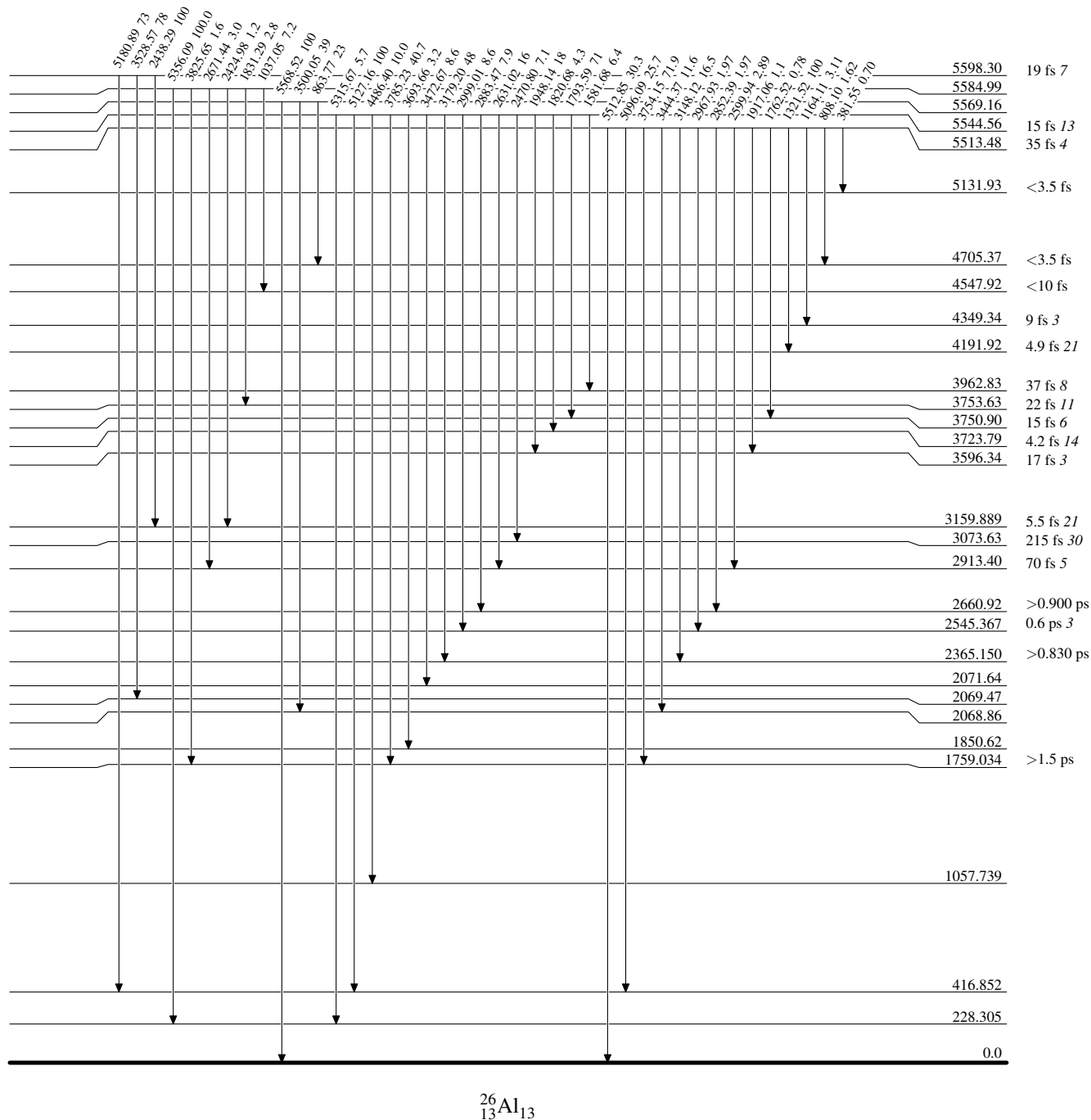


$^{26}_{13}\text{Al}_{13}$

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

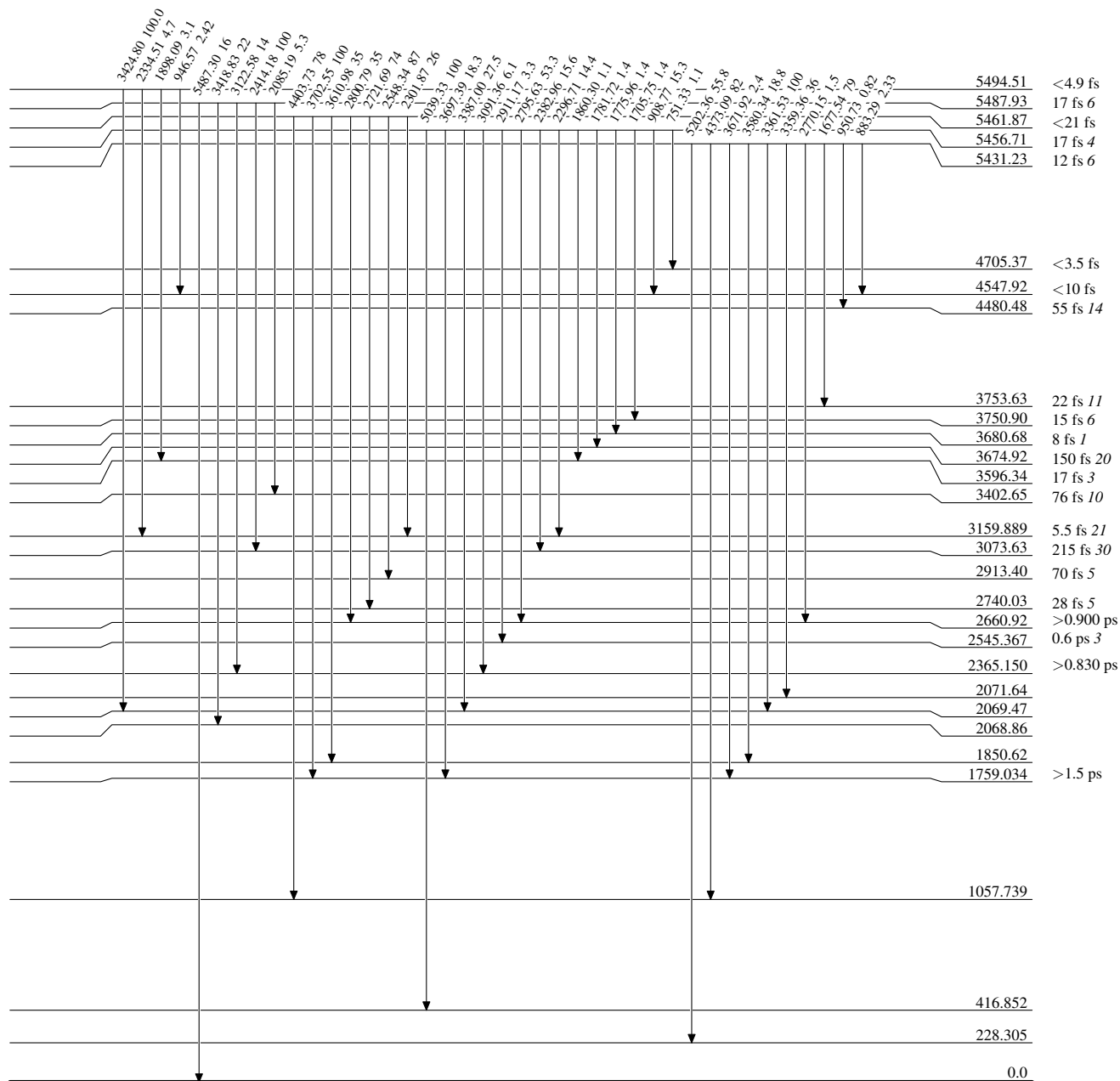
Intensities: Relative photon branching from each level



$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

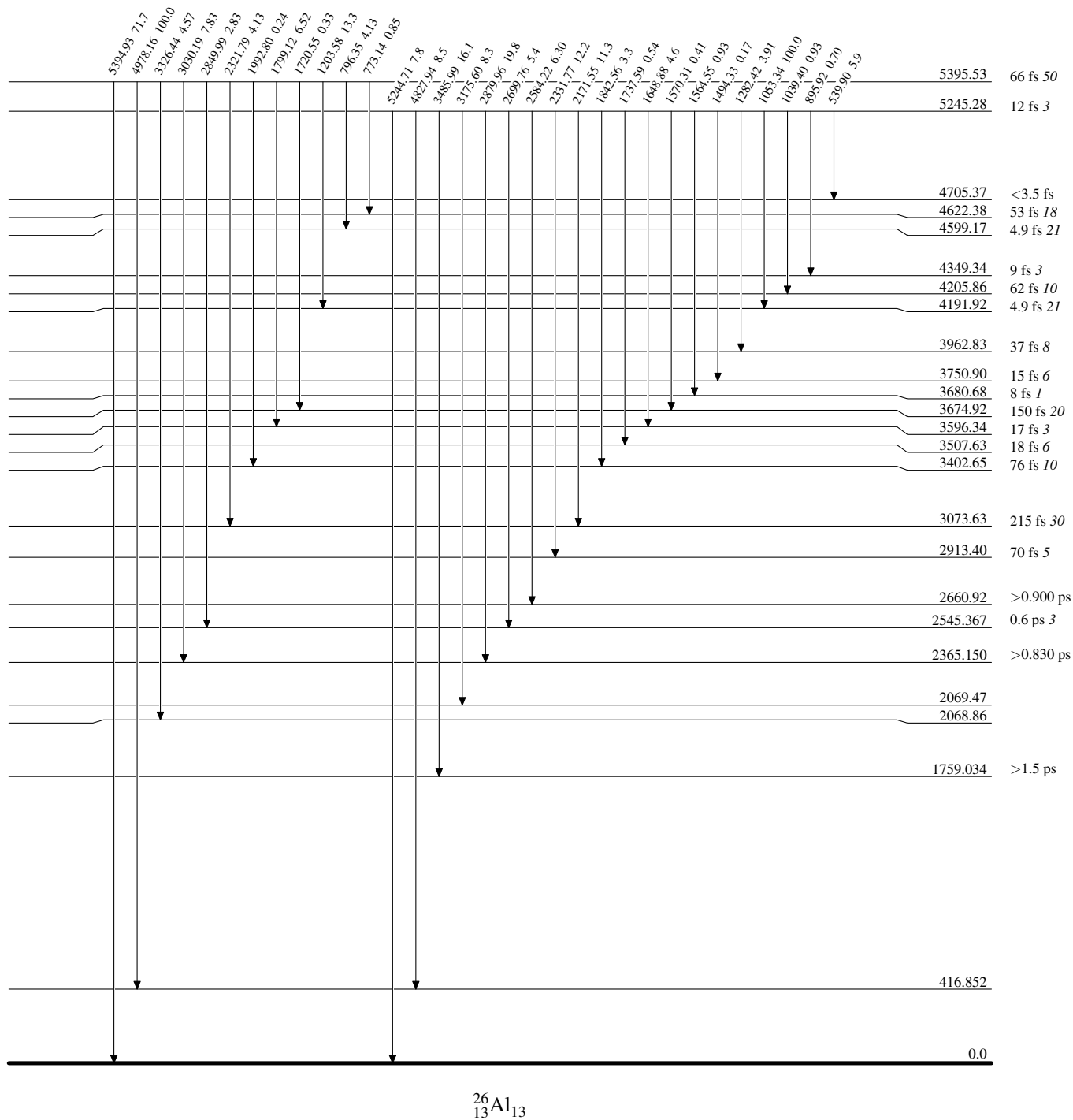
Intensities: Relative photon branching from each level

 $^{26}_{13}\text{Al}_{13}$

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

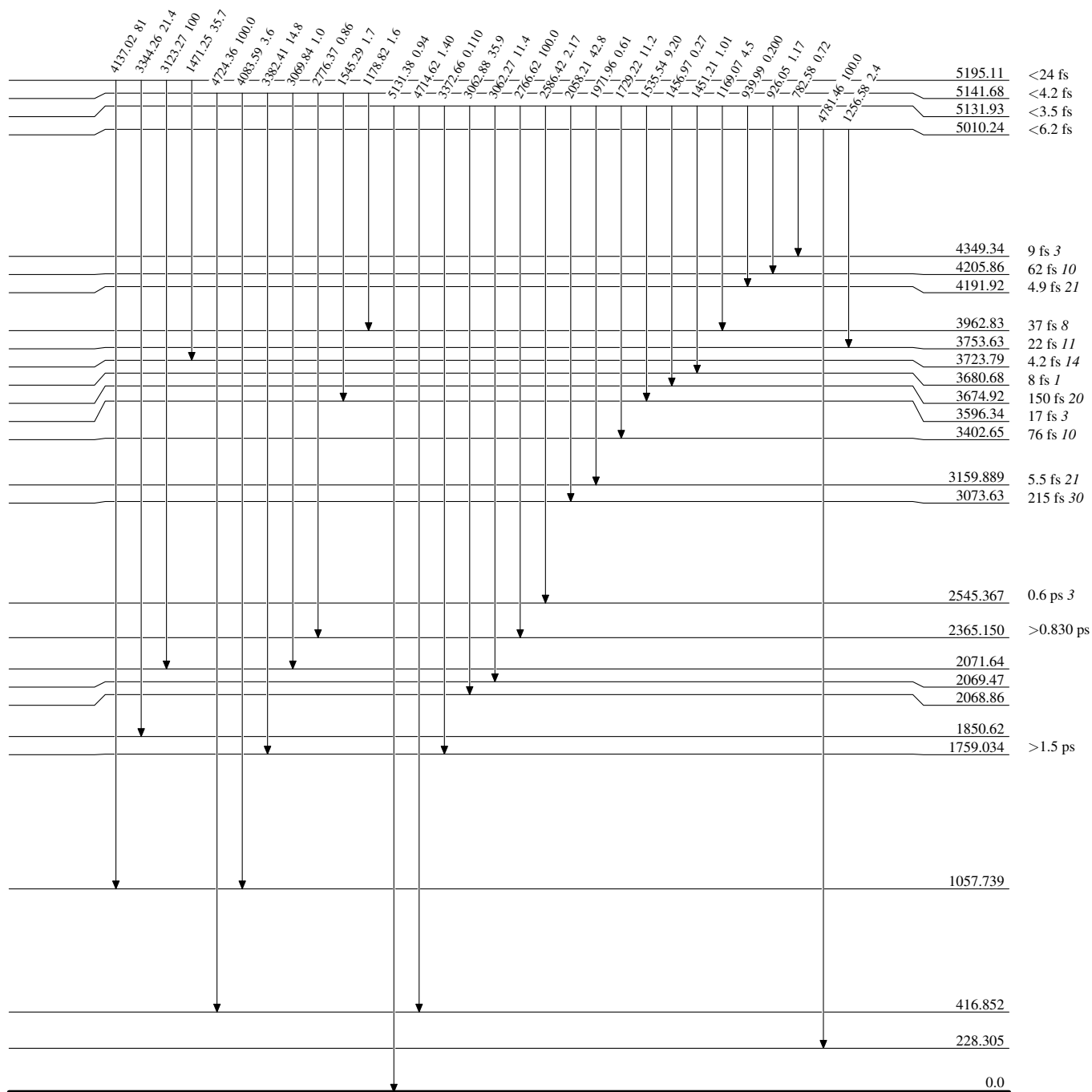


$^{26}_{13}\text{Al}_{13}$

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

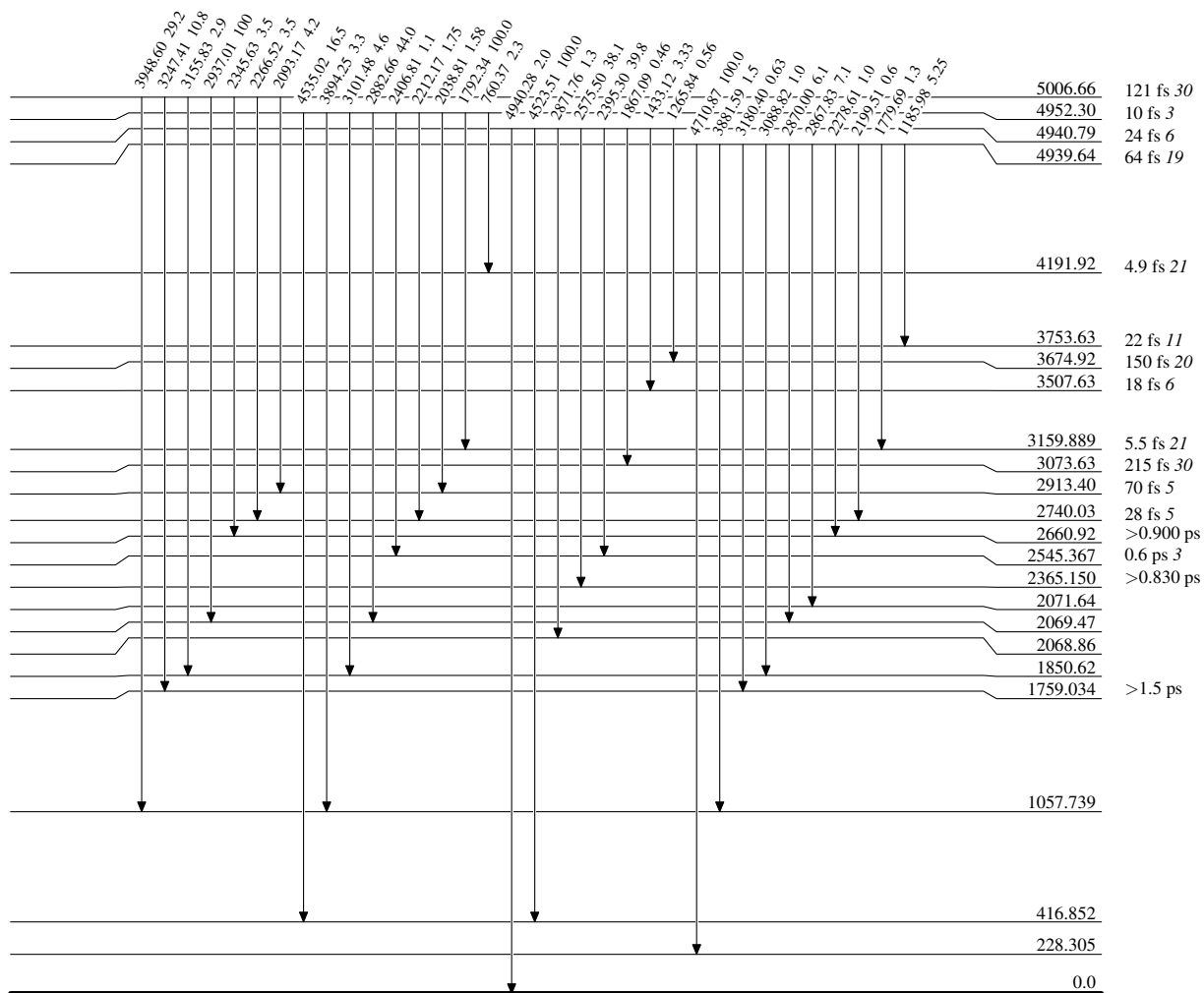


$^{26}_{13}\text{Al}_{13}$

$^{25}\text{Mg}(p,\gamma),(p,p)$ 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

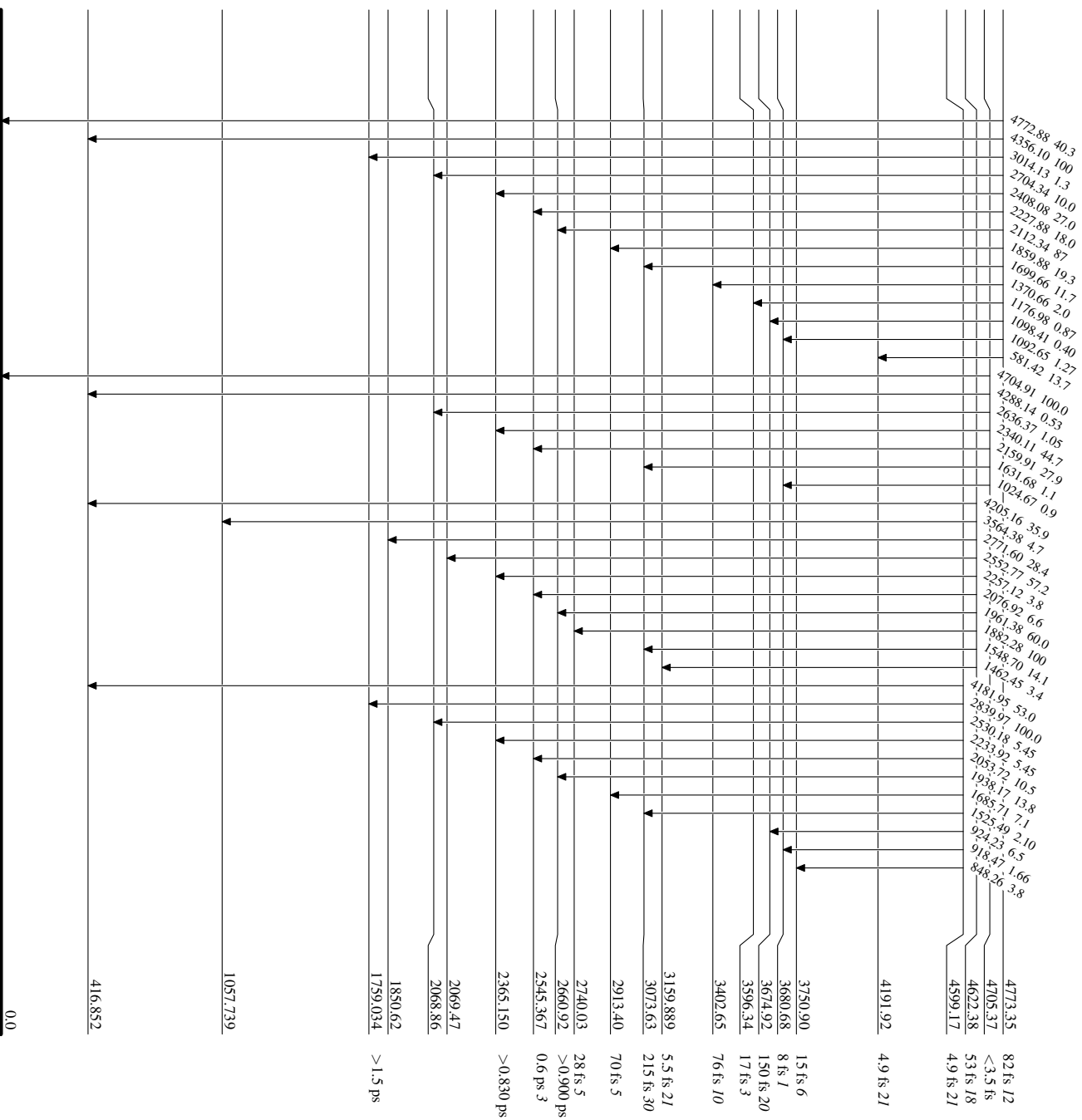
Intensities: Relative photon branching from each level

 $^{26}_{13}\text{Al}_{13}$

²⁵Mg(p,γ)(p,p) 1988En01,1996B-06,1984Ad07

Level Scheme (continued)

Intensities: . Relative photon branching from each level

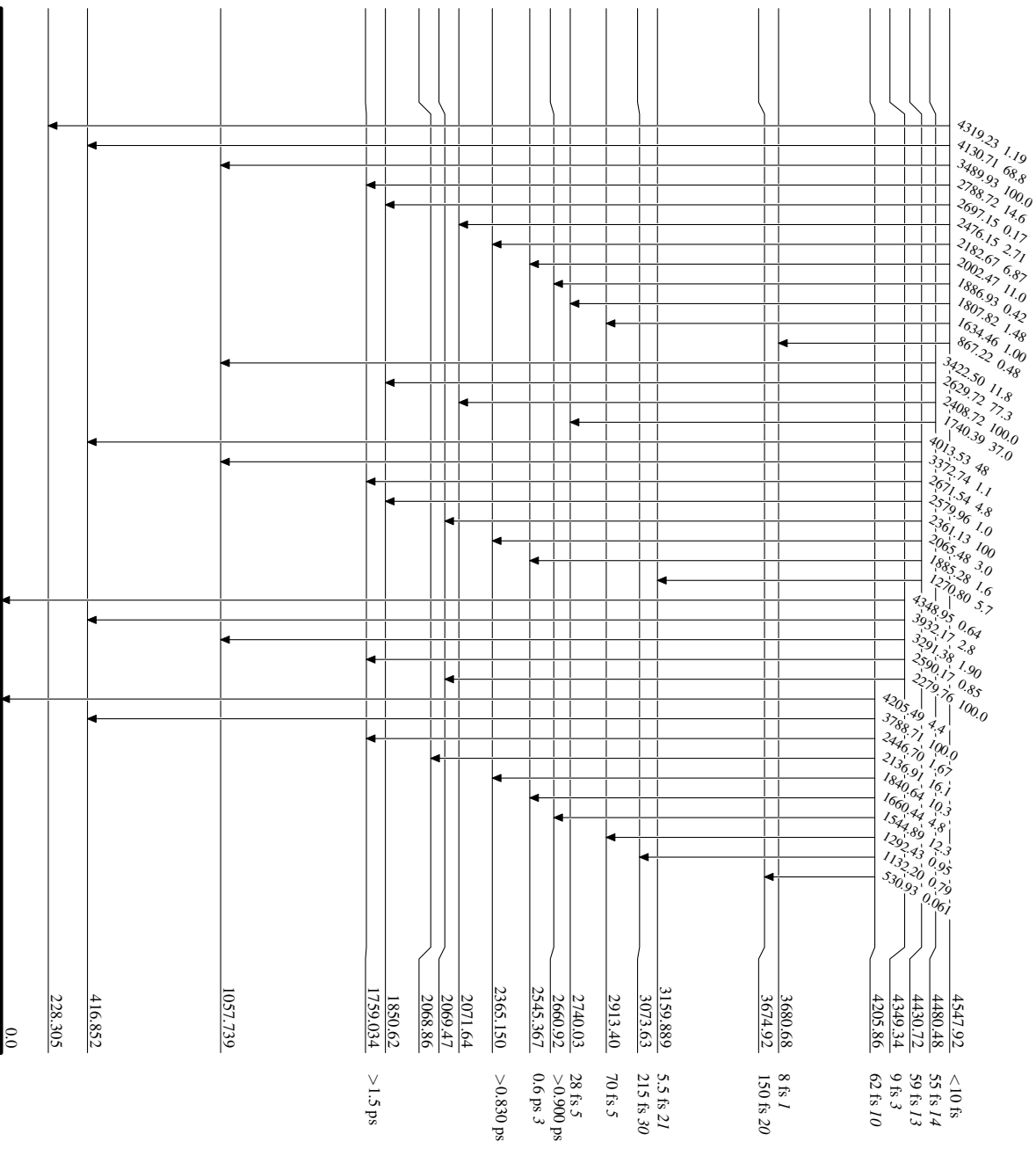


²⁶Al₁₃

²⁵Mg(p,γ)(p,p) 1988En01,1996Br-06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

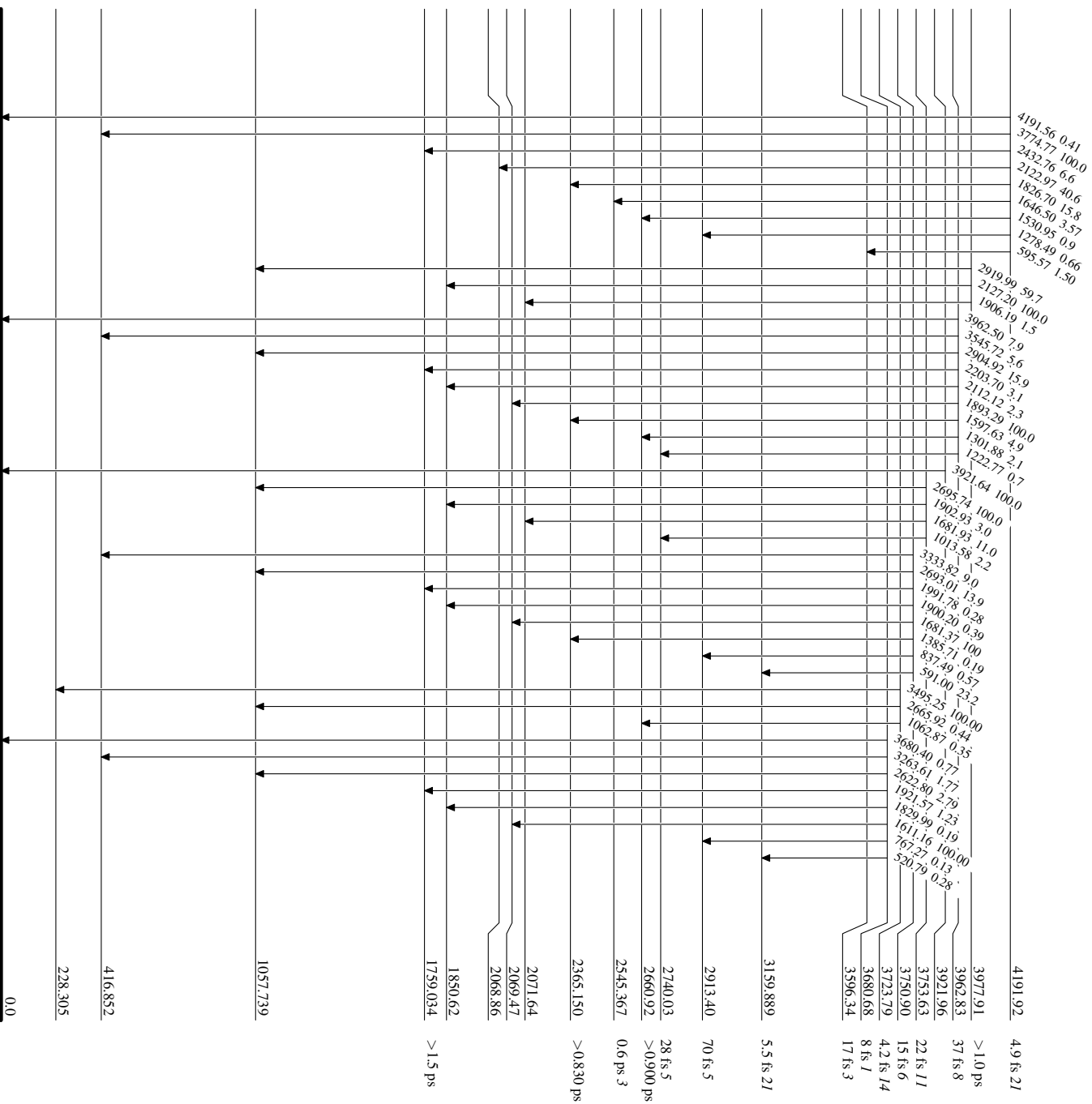


²⁶Al₁₃

²⁵Mg(p,γ)(p,p) 1988En01,1996Br-06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

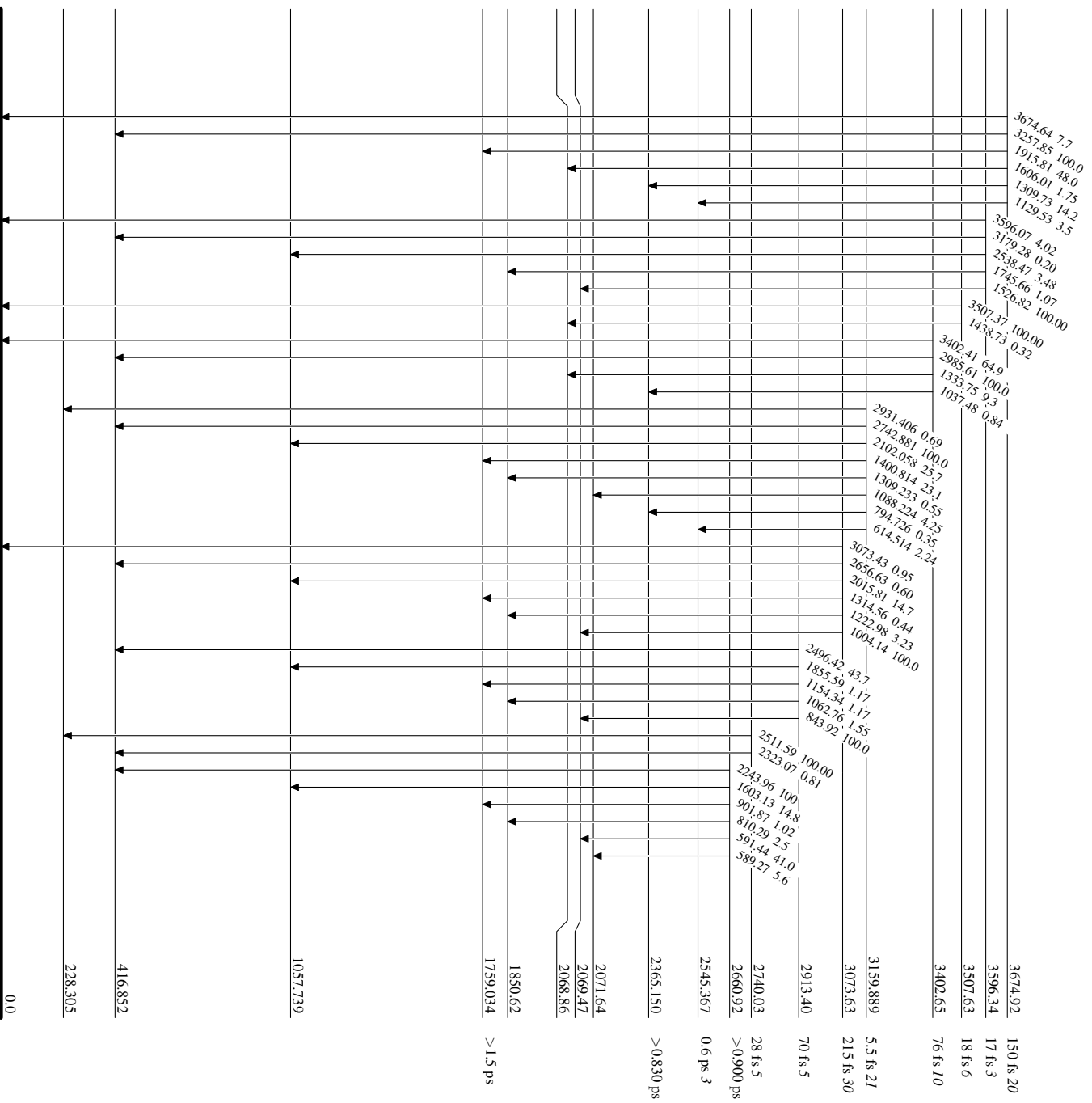


²⁶Al₁₃

²⁵Mg(p,γ)(p,p) 1988En01,1996Br-06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level



²⁶Al₁₃

²⁵Mg(p,γ)(p,p) 1988En01,1996Br06,1984Ad07

Level Scheme (continued)

Intensities: Relative photon branching from each level

