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Thermal Neutron Capture Data for A=1-25

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People's Republic of China

Research carried out under the IAEA Contract No. 10693/R0

CRP Development of a Database for Prompt γ-ray Neutron Activation Analysis

July 2000

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Abstract:

This report presents a new evaluation of level properties, prompt γ-rays and decay schemes properties of thermal neutron capture for nuclides A=1-25. The cutoff date is indicated below. This evaluation may be considered as an update of the Prompt Gamma Ray from Thermal Neutron Capture data table as published in Atomic Data and Nuclear Data Tables 26, 511, (1981).

Cutoff date:
September 1999. All references from Nuclear Science References (NSR) and private communications received have been considered.

July 2000

^{1}H(n,γ) E=thermal 94Ki27,82Va13,80Is02

Target Jπ=1/2+.
Measured Eγ and Iγ, deduced S(n) (94Ki27,82Va13,80Is02,80Gr02).
Evaluated S(n)=2224.57 keV (95Au04).

^{2}H Levels

E(level)	Jπ	$T_{1/2}$	Comments
0.0†	1+†	stable	
(2224.5725 *22*)	0+,1+		Jπ: from s–wave neutron capture.

† From 96FiZY.

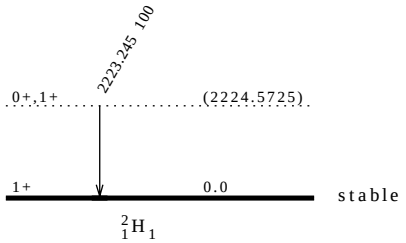
γ(^{2}H)

Eγ	E(level)	Iγ†‡	Comments
2223.245 *3*	(2224.5725)	100	Eγ: from level–energies difference.

† Intensity per 100 neutron captures.
‡ For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensity: I(γ+ce) per
100 parent decays



^{2}H(n,γ) E=thermal 82Ju01,80Al31

Target Jπ=1+.
Measured Eγ and Iγ, deduced S(n) (82Ju01,80Al31).
Evaluated S(n)=6257.25 keV (95Au04).

^{3}H Levels

E(level)	Jπ	$T_{1/2}$	Comments
0.0†	1/2+†	12.33 y† *6*	
(6257.2482 *24*)	1/2+,3/2+		Jπ: from s–wave neutron capture.

† From 96FiZY.

γ(^{3}H)

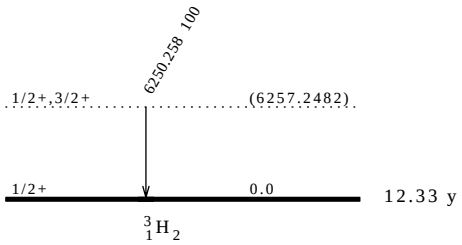
Eγ	E(level)	Iγ†‡	Comments
6250.258 *3*	(6257.2482)	100	Eγ: from level–energies difference.

† Intensity per 100 neutron captures.
‡ For intensity per 100 neutron captures, multiply by 1.

$^{2}H(n,\gamma)$ E=thermal 82Ju01,80Al31 (continued)

Level Scheme

Intensity: I(γ+ce) per 100 parent decays



^{6}Li(n,γ) E=thermal 85Ko47

Target Jπ=1+.
85Ko47: measured Eγ, Iγ; deduced Q.
Evaluated S(n)=7249.96 keV *9* (95Au04).

^{7}Li Levels

E(level)†	Jπ	$T_{1/2}$‡	Comments
0.0	3/2−‡	stable	
477.612 *3*	1/2−‡	73 fs *2*	
(7249.96 *9*)	1/2+,3/2+		Jπ: from s−wave neutron capture.

† From Eγ using least−squares fit to Eγ's.
‡ From 96FiZY.

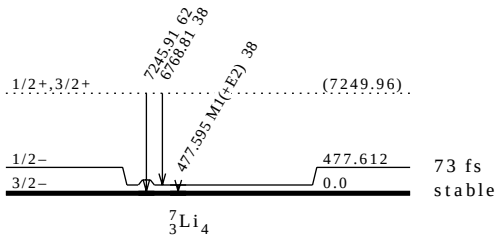
γ(^{7}Li)

Eγ	E(level)	Iγ§#	Mult.†
477.595† *3*	477.612	38 *2*	M1(+E2)
6768.81‡ *5*	(7249.96)	38 *2*	
7245.91‡ *5*	(7249.96)	62 *2*	

† From 96FiZY.
‡ From level−eneregy differences.
§ Intensities per 100 neutron captures from 85Ko47.
# For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensities: I(γ+ce) per 100
parent decays



^{7}Li(n,γ) E=thermal 91Ly01

Target Jπ=3/2−.
91Ly01: measured Eγ, Iγ; deduced S(n).
Evaluated S(n)=2033.8 keV *3* (95Au04).

^{8}Li Levels

E(level)†	Jπ	$T_{1/2}$‡	Comments
0.0	2+‡	838 ms *6*	
980.8 *1*	1+	8 fs *3*	
(2033.8 *3*)	1−,3−		Jπ: from s−wave neutron capture.

† From Eγ's using least−squares fit to data.
‡ From 96FiZY.

^{7}Li(n,γ) E=thermal 91Ly01 (continued)

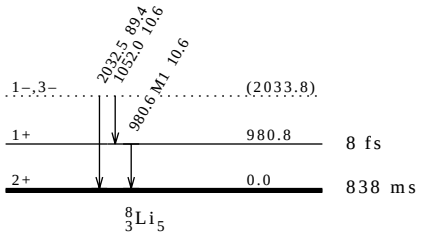
γ(^{8}Li)

Eγ‡	E(level)	Iγ§#	Mult.†
980.6† *2*	980.8	10.6 *10*	M1
1052.0 *2*	(2033.8)	10.6 *10*	
2032.5 *3*	(2033.8)	89.4 *10*	

† From 96FiZY.
‡ From 91Ly01.
§ Intensities per 100 neutron captures from 91Ly01.
# For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



$^{10}_{4}Be_{6}$

^{9}Be(n,γ) E=thermal 83Ke11,74JuZW

Target Jπ=3/2−.
83Ke11: measured Eγ; deduced Q.
74JuZW: measured Eγ, Iγ and γ−production cross sections.
Evaluated S(n)=6812.33 keV *6* (95Au04).

^{10}Be Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	0+	1.51×10^{6} y *6*	
3368.03 *3*	2+	125 fs *12*	
5958.39 *5*	2+	<55 fs	
5959.9 *6*	1−		
6179.3 *7*	0+		
6263.3 *50*	2−		
(6812.33 *6*)	1−,2−		E(level): from evaluated S(n) (95Au04). Jπ: from s−wave neutron capture.

† From Eγ (96FiZY), except as noted.
‡ From 96FiZY, except as noted.

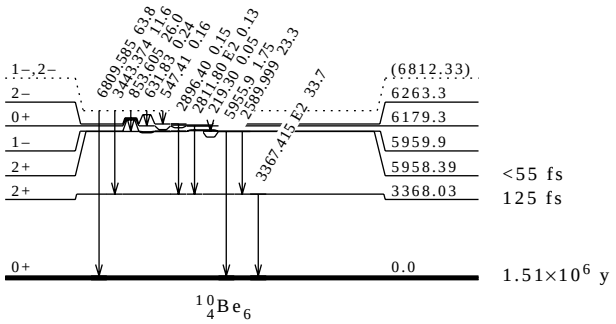
γ(^{10}Be)

Eγ‡	E(level)	Iγ#@	Mult.†	Comments
219.30§ *20*	6179.3	0.05 *1*		σ(n,γ)=0.004 mb *1* (74JuZW).
547.41§ *15*	(6812.33)	0.16 *3*		σ(n,γ)=0.012 mb *2* (74JuZW).
631.83§ *15*	(6812.33)	0.24 *3*		σ(n,γ)=0.018 mb *2* (74JuZW).
853.605 *60*	(6812.33)	26.0 *26*		σ(n,γ)=2.0 mb *2* (74JuZW).
2589.999 *60*	5958.39	23.3 *27*		σ(n,γ)=1.7 mb *2* (74JuZW).
2811.80§ *30*	6179.3	0.13 *3*	E2	σ(n,γ)=0.010 mb *2* (74JuZW).
2896.40§ *30*	6263.3	0.15 *3*		σ(n,γ)=0.011 mb *2* (74JuZW).
3367.415 *30*	3368.03	33.7 *27*	E2	σ(n,γ)=2.5 mb *2* (74JuZW).
3443.374 *30*	(6812.33)	11.6 *11*		σ(n,γ)=0.86 mb *8* (74JuZW).
5955.9 *5*	5958.39	1.75 *32*		σ(n,γ)=0.11 mb *2* (74JuZW).
6809.585 *33*	(6812.33)	63.8 *65*		σ(n,γ)=4.9 mb *5* (74JuZW).

† From 96FiZY.
‡ From 83Ke11 (0.12 keV has been added to the uncertainties), except as noted.
§ From 74JuZW.
# Intensities per 100 neutron captures deduced from γ production cross sections in 74JuZW.
@ For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



$^{10}_{4}Be_{6}$

^{12}C(n,γ) E=thermal 82Mu14

Target Jπ=0+.
82Mu14: measured Eγ and Iγ, deduced S(n).
Evaluated S(n)=4946.31 keV (95Au04).

^{13}C Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	1/2−	stable	
3089.446 *16*	1/2+	1.07 fs *10*	
3684.475 *17*	1/2−	1.10 fs *9*	
(4946.3120 *23*)	1/2+		Jπ: from s−wave neutron capture.

† From Eγ using least−squares fit to data.
‡ From 96FiZY, except as noted.

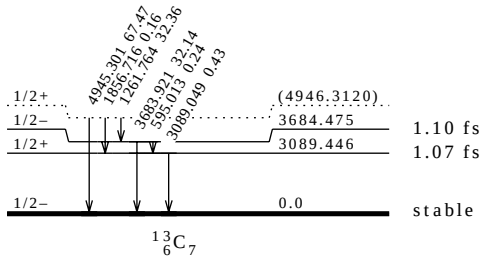
γ(^{13}C)

Eγ†	E(level)	Iγ§#
595.013 *11*	3684.475	0.24 *1*
1261.764‡ *12*	(4946.3120)	32.36 *44*
1856.716‡ *12*	(4946.3120)	0.16 *1*
3089.049 *20*	3089.446	0.43 *2*
3683.921 *23*	3684.475	32.14 *64*
4945.301‡ *3*	(4946.3120)	67.47 *92*

† From 96FiZY, except as noted.
‡ From level energy differences.
§ Intensities per 100 neutron captures from 82Mu14.
# For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



^{13}C(n,γ) E=thermal 82Mu14

Target Jπ=1/2−.
82Mu14: measured Eγ and Iγ, deduced S(n).
Evaluated S(n)=8176.44 keV *1* (95Au04).

^{14}C Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	0+	5730 y *40*	%β^-=100.
6093.82 *20*	1−	<7 fs	

Continued on next page (footnotes at end of table)

^{13}C(n,γ) E=thermal 82Mu14 (continued)

^{14}C Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
6589.5 *3*	0+	3.0 fs *4*	
6902.7 *3*	0−	25 fs *3*	
(8176.44 *1*)	0−,1−		Jπ: from s−wave neutron capture.

† From Eγ using least−squares fit to data.
‡ From 96FiZY, except as noted.

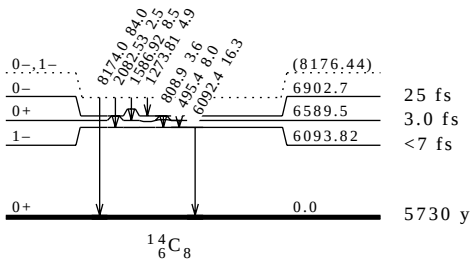
γ(^{14}C)

Eγ†	E(level)	Iγ§#	Comments
495.4 *3*	6589.5	8.0 *3*	
808.9 *2*	6902.7	3.6 *3*	
1273.81‡ *17*	(8176.44)	4.9 *10*	Eγ=1273.9 *2* (82Mu14).
1586.92‡ *18*	(8176.44)	8.5 *5*	Eγ=1586.8 *2* (82Mu14).
2082.53‡ *18*	(8176.44)	2.5 *5*	Eγ=2082.6 *3* (82Mu14).
6092.4 *2*	6093.82	16.3 *8*	
8174.0‡ *3*	(8176.44)	84.0 *23*	Eγ=8173.92 (82Mu14).

† From 96FiZY, except as noted.
‡ From level energy differences.
§ Intensities per 100 neutron captures from 82Mu14.
# For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



$^{14}_{6}C_{8}$

^{14}N(n,γ) E=thermal 97Ju02,94Ra17,90Is05

Target Jπ=1+.
97Ju02: measured Eγ, Iγ, and γ–production cross sections; deduced S(n).
94Ra17: measured Eγ, Iγ and DSA. Deduced $T_{1/2}$.
90Is05: measured Eγ, Iγ, and σ(n,γ).
Evaluated S(n)=10833.30 keV (95Au04).
Measured S(n)=10833.3015 keV *24* (95Di08), 10833.314 keV *12* (97Ju02), 10833.64 keV *13* (80Gr12).

^{15}N Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0	1/2–	stable	
5270.164 *13*	5/2+	1.79 fs *10*	
5298.824 *15*	1/2+	17 fs *5*	
6323.858 *13*	3/2–	0.146 fs *8*	
7155.089 *16*	5/2+	12 fs *6*	
7300.885 *18*	3/2+	0.42 fs *4*	
7563.53 *15*	7/2+	8 fs *+8–4*	
8312.635 *20*	1/2+	1.2 fs *8*	
8571.20 *4*	3/2+	0.5 fs *5*	
9049.58 *6*	1/2+	0.35 fs *6*	
9151.97 *5*	3/2–	0.97 fs *25*	
9154.934 *18*	5/2+	5 fs *+4–2*	
9222.48 *14*	1/2–	<90 fs	
9760.26 *7*	5/2–	1.8 fs *6*	
9924.88 *5*	3/2–	0.21 fs *4*	
10065.45 *7*	3/2+	0.069 fs *4*	
10450.3 *4*	5/2–		
10701.67 *7*	3/2–		
(10833.3015 *24*)	1/2+,3/2+		Jπ: from s–wave neutron capture.

† From Eγ's using least–squares fit to data.
‡ From 96FiZY and 91Aj01, except as noted.
§ From 96FiZY. See also 94Ra17.

γ(^{15}N)

Eγ@	E(level)	Iγ§&	Mult.†	δ†	Comments
131.44 *7*	(10833.3015)	0.018 *4*			σ(n,γ)=0.015 mb *3* (97Ju02).
383.0 *4*	(10833.3015)	0.007 *3*			σ(n,γ)=0.006 mb *2* (97Ju02).
583.75 *4*	9154.934	0.142 *10*			σ(n,γ)=0.115 mb *8* (97Ju02).
608.3 *5*	9760.26	0.022 *4*			σ(n,γ)=0.018 mb *3* (97Ju02).
767.84 *7*	(10833.3015)	0.062 *4*			σ(n,γ)=0.050 mb *3* (97Ju02).
770.4 *5*	9924.88	0.010 *4*			σ(n,γ)=0.008 mb *3* (97Ju02).
831.22 *11*	7155.089	0.031 *4*			σ(n,γ)=0.025 mb *3* (97Ju02).
908.41 *4*	(10833.3015)	0.159 *5*			σ(n,γ)=0.129 mb *4* (97Ju02).
1011.68 *4*	8312.635	0.136 *5*	M1‡		σ(n,γ)=0.110 mb *4* (97Ju02).
1025.2 *3*	6323.858	0.016 *3*	E1‡		σ(n,γ)=0.013 mb *2* (97Ju02).
1053.9 *3*	6323.858	0.015 *4*			σ(n,γ)=0.012 mb *3* (97Ju02).
1073.02 *7*	(10833.3015)	0.088 *5*			σ(n,γ)=0.071 mb *4* (97Ju02).
1610.79 *14*	(10833.3015)	0.073 *6*			σ(n,γ)=0.059 mb *5* (97Ju02).
1678.293 *25*	(10833.3015)	7.96 *9*			Iγ=7.23 *18* (91Aj01). σ(n,γ)=6.39 mb *7* (97Ju02).
1681.228 *50*	(10833.3015)	1.63 *4*			Iγ=1.54 *15* (91Aj01). σ(n,γ)=1.32 mb *3* (97Ju02).
1783.63 *6*	(10833.3015)	0.247 *9*			σ(n,γ)=0.200 mb *7* (97Ju02).
1853.98 *4*	9154.934	0.645 *9*			σ(n,γ)=0.522 mb *7* (97Ju02).
1884.780 *18*	7155.089	18.77 *20*	[M1+E2]	+0.014 *+15–14*	Iγ=18.66 *25* (91Aj01). σ(n,γ)=15.07 mb *16* (97Ju02).
1988.46 *25*	8312.635	0.32 *5*	E1‡		Iγ=0.37 *9* (91Aj01). σ(n,γ)=0.26 mb *4* (97Ju02).
1999.679 *27*	9154.934	4.11 *5*			Iγ=3.99 *9* (91Aj01). σ(n,γ)=3.30 mb *4* (97Ju02).
2002.3 *4*	7300.885	0.24 *5*	M1‡		σ(n,γ)=0.19 mb *4* (97Ju02).
2030.8 *4*	7300.885	0.069 *15*			σ(n,γ)=0.056 mb *12* (97Ju02).

Continued on next page (footnotes at end of table)

^{14}N(n,γ) E=thermal 97Ju02,94Ra17,90Is05 (continued)

γ(^{15}N) (continued)

Eγ[@]	E(level)	Iγ[§&]	Mult.[†]	δ[†]	Comments
2247.4 *5*	8571.20	0.015 *4*	E1[‡]		σ(n,γ)=0.012 mb *3* (97Ju02).
2261.83 *10*	(10833.3015)	0.077 *5*			σ(n,γ)=0.062 mb *4* (97Ju02).
2293.15 *16*	7563.53	0.045 *5*	[M1+E2]	+0.028 *12*	σ(n,γ)=0.036 mb *4* (97Ju02).
2520.443 *22*	(10833.3015)	5.58 *9*			Iγ=5.79 *7* (91Aj01). σ(n,γ)=4.48 mb *7* (97Ju02).
2726.0 *5*	9049.58	0.020 *5*	E1[‡]		σ(n,γ)=0.016 mb *4* (97Ju02).
2830.805 *36*	9154.934	1.71 *4*			Iγ=1.75 *3* (91Aj01). σ(n,γ)=1.37 mb *3* (97Ju02).
2898.4 *5*	9222.48	0.022 *5*			σ(n,γ)=0.018 mb *4* (97Ju02).
3013.55 *10*	8312.635	0.644 *21*	M1[‡]		Iγ=0.69 *2* (91Aj01). σ(n,γ)=0.521 mb *17* (97Ju02).
3269.2 *4*	(10833.3015)	0.06 *1*			σ(n,γ)=0.049 mb *9* (97Ju02).
3300.74 *13*	8571.20	0.150 *11*	[M1+E2]	+0.091 *7*	Iγ=0.16 *2* (91Aj01). σ(n,γ)=0.121 mb *9* (97Ju02).
3531.982 *20*	(10833.3015)	8.94[#] *11*			Iγ=9.24 *9* (91Aj01). σ(n,γ)=7.18 mb *9* (97Ju02).
3677.737 *17*	(10833.3015)	14.52[#] *16*			Iγ=14.89 *15* (91Aj01). σ(n,γ)=11.66 mb *13* (97Ju02).
3855.60 *7*	9154.934	0.811 *26*			Iγ=0.70 *1* (91Aj01). σ(n,γ)=0.656 mb *21* (97Ju02).
3880.9 *9*	9151.97	0.048 *16*			σ(n,γ)=0.039 mb *13* (97Ju02).
3884.20 *9*	9154.934	0.564 *22*			Iγ=0.57 *2* (91Aj01). σ(n,γ)=0.456 mb *18* (97Ju02).
3923.9 *6*	9222.48	0.037 *9*			σ(n,γ)=0.030 mb *7* (97Ju02).
4508.731 *17*	(10833.3015)	16.71[#] *17*			Iγ=16.54 *17* (91Aj01). σ(n,γ)=13.42 mb *14* (97Ju02).
4654.1 *11*	9924.88	0.028 *6*			σ(n,γ)=0.023 mb *5* (97Ju02).
5269.162 *17*	5270.164	29.86[#] *30*	[M2+E3]	−0.131 *13*	Iγ=30.03 *20* (91Aj01). σ(n,γ)=23.98 mb *24* (97Ju02).
5297.826 *20*	5298.824	21.23[#] *22*			Iγ=21.31 *18* (91Aj01). σ(n,γ)=17.05 mb *18* (97Ju02).
5533.391 *18*	(10833.3015)	19.58[#] *21*			Iγ=19.75 *21* (91Aj01). σ(n,γ)=15.72 mb *17* (97Ju02).
5562.059 *21*	(10833.3015)	10.68[#] *12*			Iγ=10.65 *12* (91Aj01). σ(n,γ)=8.58 mb *10* (97Ju02).
6322.433 *16*	6323.858	18.23[#] *22*	[M1+E2]	−0.132 *4*	Iγ=18.67 *14* (91Aj01). σ(n,γ)=14.64 mb *18* (97Ju02).
7153.4 *4*	7155.089	0.063 *7*			σ(n,γ)=0.051 mb *6* (97Ju02).
7298.980 *32*	7300.885	9.39[#] *12*	[E1+M2]	−0.017 *+5−8*	Iγ=9.73 *9* (91Aj01). σ(n,γ)=7.54 mb *10* (97Ju02).
8310.156 *39*	8312.635	4.12[#] *9*	E1[‡]		Iγ=4.22 *5* (91Aj01). σ(n,γ)=3.31 mb *7* (97Ju02).
8568.6 *4*	8571.20	0.069 *7*	[E1+M2]	−0.085 *+5−9*	Iγ=0.073 *4* (91Aj01). σ(n,γ)=0.056 mb *5* (97Ju02).
9046.71 *17*	9049.58	0.202 *11*	E1[‡]		Iγ=0.186 *5* (91Aj01). σ(n,γ)=0.163 mb *9* (97Ju02).
9148.95 *9*	9151.97	1.47 *6*			Iγ=1.6 *2* (91Aj01). σ(n,γ)=1.19 mb *5* (97Ju02).
9151.9 *7*	9154.934	0.15 *4*			σ(n,γ)=0.12 mb *3* (97Ju02).
9219.5 *11*	9222.48	0.019 *7*			Iγ=0.024 *5* (91Aj01). σ(n,γ)=0.015 mb *6* (97Ju02).
9757.1 *5*	9760.26	0.056 *6*			σ(n,γ)=0.045 mb *5* (97Ju02).
9921.3 *3*	9924.88	0.126 *10*			Iγ=0.127 *4* (91Aj01). σ(n,γ)=0.102 mb *8* (97Ju02).
10061.9 *5*	10065.45	0.057 *6*			Iγ=0.062 *4* (91Aj01). σ(n,γ)=0.046 mb *5* (97Ju02).
10697.8 *17*	10701.67	0.010 *5*	[M1+E2]	−0.180 *+2−6*	Iγ=0.062 *4* (91Aj01). σ(n,γ)=0.008 mb *4* (97Ju02).
10829.110 *59*	(10833.3015)	14.3[#] *6*			Iγ=13.65 *21* (91Aj01). σ(n,γ)=11.5 mb *5* (97Ju02).

† From 96FiZY and 91Aj01, except as noted.
‡ From 94Ra17.

Footnotes continued on next page

^{14}N(n,γ) E=thermal 97Ju02,94Ra17,90Is05 (continued)

γ(^{15}N) (continued)

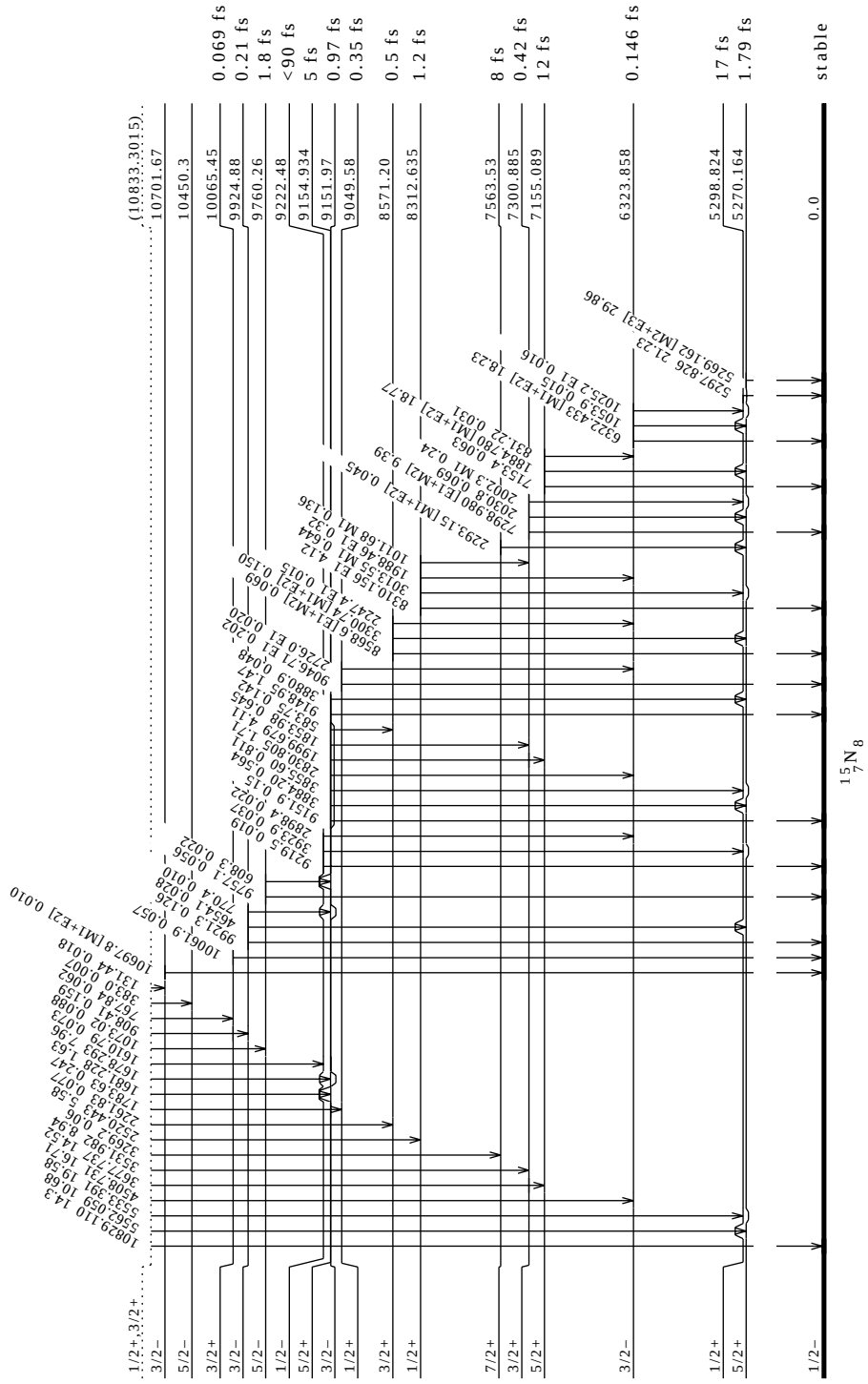
§ Intensities per 100 neutron captures. Values deduced from σ(n,γ) of 97Ju02, except as noted.
# From table 3 in 97Ju02.
@ From 97Ju02, except as noted.
& For intensity per 100 neutron captures, multiply by 1.

$^{15}_{7}N_{8}$

^{14}N(n,γ) E=thermal 97Ju02,94Ra17,90Is05 (continued)

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



^{16}O(n,γ) E=thermal 77Mc05

Target Jπ=0+.
77Mc05: measured Eγ and Iγ, γ–production.
Evaluated S(n)=4143.33 keV *21* (95Au04).

^{17}O Levels

E(level)†	Jπ†	$T_{1/2}$†	Comments
0.0	5/2+	stable	
870.73 *10*	1/2+	179.2 ps *18*	
3055.36 *16*	1/2–	0.08 ps *+6–4*	
(4143.33 *21*)	1/2+		E(level): from evaluated S(n) (95Au04). Jπ: from s–wave neutron capture.

† From 96FiZY, except as noted.

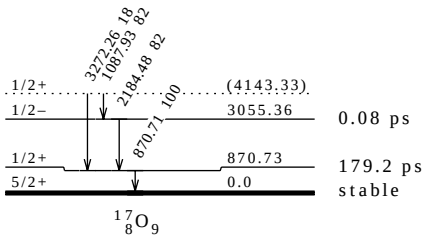
γ(^{17}O)

Eγ†	E(level)	Iγ§#
870.71 *12*	870.73	100
1087.93‡ *11*	(4143.33)	82 *3*
2184.48 *20*	3055.36	82 *3*
3272.26‡ *11*	(4143.33)	18 *3*

† From 96FiZY, except as noted.
‡ From level energy differences.
§ Intensities fer 100 neutron captures from 77Mc05.
# For intensity per 100 neutron captures, multiply by 1.

Level Scheme

Intensities: I(γ+ce) per
100 parent decays



^{17}O(n,γ) E=thermal 78LoZW,79LoZT

Target Jπ=5/2+.
78LoZW,78LoZT: measured Eγ, Iγ, and σ(n,γ). Deduced decay scheme.
Evaluated S(n)=8044.4 keV *8* (95Au04).

^{18}O Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	0+	stable	
1982	2+		
3634	0+		
3921	2+		
4456	1–		

Continued on next page (footnotes at end of table)

$^{17}O(n,\gamma)$ E=thermal 78LoZW,79LoZT (continued)

^{18}O Levels (continued)

E(level)†	Jπ‡	Comments
5096	3−	
5377	3+	
6352	1,2	
(8044.4 *8*)	2+,3+	E(level): from evaluated S(n) (95Au04). Jπ: from s−wave neutron capture.

† From 79LoZT and 78LoZW. Uncertainty not given by author.
‡ From 96FiZY, except as noted.

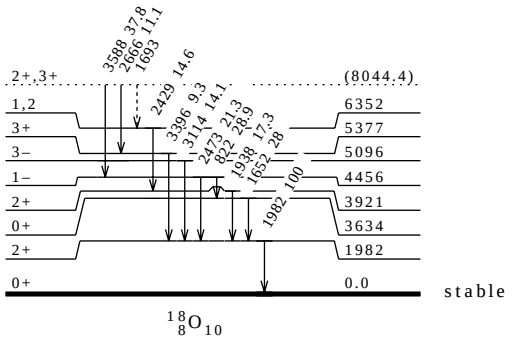
$\gamma(^{18}O)$

Eγ†	E(level)	Iγ‡	Eγ†	E(level)	Iγ‡	Eγ†	E(level)	Iγ‡
822	4456	28.9	1982	1982	100	3114	5096	14.1
1652	3634	28	2429	6352	14.6	3396	5377	9.3
1693§	(8044.4)		2473	4456	21.3	3588	(8044.4)	37.8
1938	3921	17.3	2666	(8044.4)	11.1			

† From 79LoZT and 78LoZW. Uncertainty not given by authors.
‡ Relative intensities from 78LoZW and 79LoZT. Uncertainty not given by authors.
§ Placement of transition in the level scheme is uncertain.

Level Scheme

Intensities: relative Iγ



^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12

Target Jπ=1/2+.
96Ra04: measured Eγ, and γ–production cross sections; deduced S(n).
86Ke15: measured Eγ, and Iγ; deduced S(n).
83Hu12: measured Eγ, Iγ; deduced levels, Jπ.
Evaluated S(n)=6601.31 keV *5* (95Au04).
Measured S(n)=6601.35 keV *4* (96Ra04), 6601.33 keV *14* (83Hu12), 6601.36 keV *5* (87Ke09).

^{20}F Levels

E(level)†	Jπ‡	$T_{1/2}$§	Comments
0.0	2+	11.00 s# *2*	%β⁻=100.
656.02 *3*	3+	0.305 ps *21*	$T_{1/2}$: other: 0.270 ps *21* (96FiZY).
822.73 *3*	4+	55 ps# *4*	
983.59 *3*	1–	1.36 fs *6*	$T_{1/2}$: other: 1.39 ps *14* (96FiZY).
1056.82 *3*	1+	5.1 fs *11*	$T_{1/2}$: other: 31 fs *9* (96FiZY).
1309.19 *3*	2–	1.31 fs *6*	$T_{1/2}$: other: 1.11 ps *21* (96FiZY).
1843.80 *3*	2–	46 fs *3*	$T_{1/2}$: other: 21 fs *14* (96FiZY).
1970.83 *4*	(3–)	0.43 fs *6*	
2043.98 *3*	2+	2.7 fs *5*	$T_{1/2}$: other: 26 fs *11* (96FiZY).
2194.30 *3*	(3+)	2.8 fs *8*	$T_{1/2}$: other: <8.3 fs (96FiZY).
2864.86 *10*	(3–)	20 fs *3*	
2966.11 *3*	3+	3.7 fs *7*	$T_{1/2}$: other: 42 fs *28* (96FiZY).
3171.69 *14*	(1+)		
3488.41 *3*	1+	8.1 fs *5*	$T_{1/2}$: other: 30 fs *8* (96FiZY).
3526.31 *4*	0+	3.8 fs *4*	$T_{1/2}$: other: 21 fs *10* (96FiZY).
3586.54 *3*	(1,2)+	0.76 fs *4*	$T_{1/2}$: other: <42 fs (96FiZY).
3589.80 *4*			
3680.17 *4*	1,2	15.3 fs *16*	
3965.07 *4*	1+	4.8 fs *16*	
4082.17 *4*	(1)+	2.5 fs *5*	
4277.09 *4*	(1,2)+	5 fs *3*	
4371.47 *11*	(2+)	<3 fs	
4591.72 *7*			
4892.76 *17*			
5226.1 *4*	(1,2)–	0.97 fs *8*	
5282.79 *10*			
5319.17 *4*	0,1,2	3.4 fs *8*	
5465.89 *17*	(1,2,3)+		
5555.34 *4*	1,2+	4.2 fs *10*	
5623.13 *6*			
5810.1 *4*	(1+)		
5936.13 *3*	2–	<1.4 fs	
5939.10 *10*			
6017.78 *3*	2–	2.3 fs *8*	
6044.92 *3*	0,1,2		
6299.1 *3*			
(6601.35 *3*)	0+,1+		Jπ: from s–wave neutron capture.

† From Eγ's using least–squares fit to data.
‡ From 96FiZY and 87Aj02.
§ From Doppler–shift–attenuation method (96Ra04), except as noted.
# From 96FiZY.

γ(^{20}F)

Eγ†	E(level)	Iγ§#	Mult.‡	δ‡	Comments
166.78 *5*	822.73	4.6 *5*			σ(n,γ)=0.44 mb *4* (96Ra04).
252.65 *23*	1309.19	0.08 *2*			σ(n,γ)=0.008 mb *2* (96Ra04).
302.2 *3*	(6601.35)	0.05 *2*			σ(n,γ)=0.005 mb *2* (96Ra04).
325.73 *14*	1309.19	0.43 *4*			σ(n,γ)=0.041 mb *3* (96Ra04).
534.60 *8*	1843.80	0.14 *2*			σ(n,γ)=0.013 mb *2* (96Ra04).
556.41 *3*	(6601.35)	2.10 *14*			σ(n,γ)=0.202 mb *13* (96Ra04).
583.55 *3*	(6601.35)	37.7 *16*			σ(n,γ)=3.60 mb *15* (96Ra04).
620.44 *5*	3586.54	0.24 *2*			σ(n,γ)=0.023 mb *2* (96Ra04).

Continued on next page (footnotes at end of table)

$^{20}_{9}F_{11}$

^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12 (continued)

γ(^{20}F) (continued)

Eγ†	E(level)	Iγ§#	Mult.‡	δ‡	Comments
653.2 *3*	1309.19	0.21 *3*			σ(n,γ)=0.020 mb *3* (96Ra04).
656.00 *3*	656.02	20.8 *10*	[M1+E2]	−0.10 *5*	σ(n,γ)=1.98 mb *10* (96Ra04).
661.63 *4*	1970.83	1.58 *21*			σ(n,γ)=0.151 mb *20* (96Ra04).
662.24 *14*	(6601.35)	1.07 *16*			σ(n,γ)=0.102 mb *15* (96Ra04).
665.21 *3*	(6601.35)	15.6 *8*			σ(n,γ)=1.49 mb *8* (96Ra04).
670.1 *6*	2864.86	0.03 *1*			σ(n,γ)=0.003 mb *1* (96Ra04).
691.4 *3*	4371.47	0.04 *2*			σ(n,γ)=0.004 mb *2* (96Ra04).
734.84 *12*	2043.98	0.06 *2*			σ(n,γ)=0.006 mb *2* (96Ra04).
771.71 *10*	2966.11	0.09 *2*			σ(n,γ)=0.008 mb *2* (96Ra04).
791.2 *4*	(6601.35)	0.04 *1*			σ(n,γ)=0.004 mb *1* (96Ra04).
793.36 *19*	3965.07	0.07 *2*			σ(n,γ)=0.007 mb *2* (96Ra04).
[x]803.65 *11*		0.09 *2*			σ(n,γ)=0.009 mb *2* (96Ra04).
820.9 *4*	2864.86	0.05 *2*			σ(n,γ)=0.005 mb *2* (96Ra04).
822.69 *4*	822.73	2.30 *13*			σ(n,γ)=0.219 mb *12* (96Ra04).
885.0 *3*	2194.30	0.05 *1*			σ(n,γ)=0.005 mb *1* (96Ra04).
894.1 *5*	2864.86	0.03 *1*			σ(n,γ)=0.003 mb *1* (96Ra04).
978.19 *6*	(6601.35)	0.64 *10*			σ(n,γ)=0.061 mb *10* (96Ra04).
983.53 *3*	983.59	12.2 *6*			σ(n,γ)=1.16 mb *6* (96Ra04).
987.2 *4*	1970.83	0.4 *1*			σ(n,γ)=0.004 mb *1* (96Ra04).
1020.9 *4*	2864.86	0.03 *1*			σ(n,γ)=0.003 mb *1* (96Ra04).
[x]1035.0 *3*		0.09 *2*			σ(n,γ)=0.009 mb *2* (96Ra04).
1046.00 *4*	(6601.35)	1.85 *9*			σ(n,γ)=0.177 mb *9* (96Ra04).
1056.78 *3*	1056.82	9.8 *4*			σ(n,γ)=0.94 mb *4* (96Ra04).
1135.38 *17*	(6601.35)	0.09 *2*			σ(n,γ)=0.009 mb *2* (96Ra04).
1148.05 *4*	1970.83	2.77 *16*			σ(n,γ)=0.264 mb *15* (96Ra04).
1187.70 *6*	1843.80	0.47 *3*			σ(n,γ)=0.045 mb *3* (96Ra04).
1282.14 *4*	(6601.35)	0.90 *5*			σ(n,γ)=0.086 mb *5* (96Ra04).
1306.2 *3*	4892.76	0.09 *2*			σ(n,γ)=0.009 mb *2* (96Ra04).
1309.17 *3*	1309.19	7.9 *3*			σ(n,γ)=0.76 mb *3* (96Ra04).
1318.52 *10*	(6601.35)	0.24 *2*			σ(n,γ)=0.023 mb *2* (96Ra04).
1371.53 *4*	2194.30	1.52 *9*			σ(n,γ)=0.145 mb *9* (96Ra04).
1375.2 *4*	(6601.35)	0.05 *2*			σ(n,γ)=0.005 mb *2* (96Ra04).
1387.90 *3*	2043.98	8.7 *3*			σ(n,γ)=0.83 mb *3* (96Ra04).
1392.22 *5*	3586.54	0.82 *6*			σ(n,γ)=0.078 mb *6* (96Ra04).
1542.50 *4*	3586.54	2.87 *13*			σ(n,γ)=0.274 mb *12* (96Ra04).
1545.87 *16*	3589.80	0.14 *2*			σ(n,γ)=0.013 mb *2* (96Ra04).
1555.0 *4*	2864.86	0.05 *1*			σ(n,γ)=0.005 mb *1* (96Ra04).
1644.50 *8*	3488.41	0.76 *6*			σ(n,γ)=0.073 mb *6* (96Ra04).
1708.52 *22*	(6601.35)	0.27 *3*			σ(n,γ)=0.026 mb *3* (96Ra04).
1742.7 *3*	3586.54	0.06 *2*			σ(n,γ)=0.006 mb *2* (96Ra04).
1836.50 *22*	3680.17	0.17 *2*			σ(n,γ)=0.016 mb *2* (96Ra04).
1843.74 *3*	1843.80	6.4 *3*			σ(n,γ)=0.61 mb *3* (96Ra04).
1853.96 *22*	5936.13	0.14 *2*			σ(n,γ)=0.013 mb *2* (96Ra04).
1935.50 *5*	6017.78	0.76 *5*			σ(n,γ)=0.073 mb *5* (96Ra04).
1970.73 *4*	1970.83	0.94 *9*			σ(n,γ)=0.090 mb *9* (96Ra04).
1970.95 *5*	5936.13	0.10 *3*			σ(n,γ)=0.010 mb *3* (96Ra04).
2009.52 *7*	(6601.35)	0.49 *4*			σ(n,γ)=0.047 mb *4* (96Ra04).
2038.08 *18*	4082.17	0.16 *2*			σ(n,γ)=0.015 mb *2* (96Ra04).
2042.0 *6*	2864.86	0.05 *1*			σ(n,γ)=0.005 mb *1* (96Ra04).
2043.89 *6*	2043.98	0.71 *5*			σ(n,γ)=0.068 mb *5* (96Ra04).
2052.8 *6*	6017.78	0.05 *1*			σ(n,γ)=0.005 mb *1* (96Ra04).
2079.72 *21*	6044.92	0.12 *2*			σ(n,γ)=0.011 mb *2* (96Ra04).
2120.95 *16*	3965.07	0.15 *2*			σ(n,γ)=0.014 mb *2* (96Ra04).
2143.26 *3*	2966.11	2.05 *9*			σ(n,γ)=0.196 mb *9* (96Ra04).
2179.09 *4*	3488.41	0.95 *6*			σ(n,γ)=0.091 mb *6* (96Ra04).
2187.96 *20*	3171.69	0.14 *2*			σ(n,γ)=0.013 mb *2* (96Ra04.
2194.16 *3*	2194.30	1.39 *6*			σ(n,γ)=0.133 mb *6* (96Ra04).
2208.5 *7*	2864.86	0.02 *1*			σ(n,γ)=0.002 mb *1* (96Ra04).
2229.8 *4*	(6601.35)	0.54 *5*			σ(n,γ)=0.052 mb *5* (96Ra04).
2232.9 *9*	4277.09	0.22 *3*			σ(n,γ)=0.021 mb *3* (96Ra04).
2255.82 *4*	5936.13	0.91 *5*			σ(n,γ)=0.087 mb *5* (96Ra04).
2309.96 *6*	2966.11	0.43 *4*			σ(n,γ)=0.041 mb *4* (96Ra04).
2324.11 *3*	(6601.35)	1.23 *5*			σ(n,γ)=0.117 mb *5* (96Ra04).

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^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12 (continued)

γ(^{20}F) (continued)

Eγ†	E(level)	Iγ§#	Comments
2337.58 *14*	6017.78	0.14 *3*	σ(n,γ)=0.014 mb *3* (96Ra04).
2346.30 *16*	5936.13	0.22 *4*	σ(n,γ)=0.021 mb *4* (96Ra04).
2349.55 *13*	5936.13	0.32 *3*	σ(n,γ)=0.031 mb *3* (96Ra04).
2352.44 *21*	5939.10	0.18 *3*	σ(n,γ)=0.017 mb *3* (96Ra04).
2370.88 *21*	3680.17	0.08 *2*	σ(n,γ)=0.008 mb *2* (96Ra04).
2427.83 *4*	6017.78	1.99 *7*	σ(n,γ)=0.190 mb *7* (96Ra04).
2431.08 *3*	6017.78	3.7 *3*	σ(n,γ)=0.35 mb *3* (96Ra04).
2431.43 *3*	3488.41	0.7 *3*	σ(n,γ)=0.07 mb *3* (96Ra04).
2447.58 *4*	5936.13	1.48 *7*	σ(n,γ)=0.141 mb *7* (96Ra04).
2458.0 *4*	6044.92	0.06 *1*	σ(n,γ)=0.006 mb *1* (96Ra04).
2469.34 *4*	3526.31	2.06 *8*	σ(n,γ)=0.197 mb *8* (96Ra04).
2504.54 *18*	3488.41	0.40 *4*	σ(n,γ)=0.038 mb *4* (96Ra04).
2519.05 *6*	(6601.35)	0.73 *5*	σ(n,γ)=0.070 mb *5* (96Ra04).
2529.20 *3*	6017.78	6.1 *3*	σ(n,γ)=0.58 mb *3* (96Ra04).
2529.55 *3*	3586.54	0.9 *3*	σ(n,γ)=0.09 mb *3* (96Ra04).
2556.35 *15*	6044.92	0.17 *3*	σ(n,γ)=0.016 mb *3* (96Ra04).
2600.3 *6*	5465.89	0.04 *2*	σ(n,γ)=0.004 mb *2* (96Ra04).
2602.75 *9*	3586.54	0.37 *3*	σ(n,γ)=0.035 mb *3* (96Ra04).
2623.18 *8*	3680.17	0.46 *3*	σ(n,γ)=0.044 mb *3* (96Ra04).
2636.11 *5*	(6601.35)	1.02 *5*	σ(n,γ)=0.097 mb *5* (96Ra04).
2655.74 *6*	3965.07	0.82 *6*	σ(n,γ)=0.078 mb *6* (96Ra04).
2690.5 *3*	5555.34	0.06 *1*	σ(n,γ)=0.006 mb *1* (96Ra04).
2697.9 *5*	4892.76	0.04 *1*	σ(n,γ)=0.004 mb *1* (96Ra04).
2864.68 *13*	2864.86	0.17 *4*	σ(n,γ)=0.016 mb *4* (96Ra04).
2921.01 *8*	(6601.35)	0.99 *5*	σ(n,γ)=0.094 mb *5* (96Ra04).
2930.31 *10*	3586.54	0.90 *5*	σ(n,γ)=0.086 mb *5* (96Ra04).
2933.76 *25*	3589.80	0.24 *3*	σ(n,γ)=0.023 mb *3* (96Ra04).
2965.90 *9*	2966.11	0.95 *5*	σ(n,γ)=0.091 mb *5* (96Ra04).
2969.7 *4*	5936.13	0.17 *3*	σ(n,γ)=0.016 mb *3* (96Ra04).
2981.25 *18*	3965.07	0.37 *4*	σ(n,γ)=0.035 mb *4* (96Ra04).
3014.58 *3*	(6601.35)	4.24 *17*	σ(n,γ)=0.405 mb *16* (96Ra04).
3023.90 *9*	3680.17	0.34 *4*	σ(n,γ)=0.032 mb *4* (96Ra04).
3025.10 *4*	4082.17	0.79 *5*	σ(n,γ)=0.076 mb *5* (96Ra04).
3051.43 *4*	6017.78	3.11 *12*	σ(n,γ)=0.297 mb *12* (96Ra04).
3070.9 *3*	5936.13	0.21 *3*	σ(n,γ)=0.020 mb *3* (96Ra04).
3074.81 *6*	(6601.35)	1.98 *8*	σ(n,γ)=0.189 mb *8* (96Ra04).
3098.1 *4*	4082.17	0.07 *2*	σ(n,γ)=0.007 mb *2* (96Ra04).
3112.72 *6*	(6601.35)	2.52 *10*	σ(n,γ)=0.240 mb *9* (96Ra04).
3152.1 *4*	6017.78	0.15 *3*	σ(n,γ)=0.014 mb *3* (96Ra04).
3219.89 *12*	4277.09	0.64 *4*	σ(n,γ)=0.061 mb *4* (96Ra04).
3293.23 *22*	4277.09	0.27 *3*	σ(n,γ)=0.026 mb *3* (96Ra04).
3387.56 *11*	4371.47	0.64 *5*	σ(n,γ)=0.061 mb *5* (96Ra04).
3475.3 *4*	5319.17	0.05 *1*	σ(n,γ)=0.005 mb *1* (96Ra04).
3488.13 *4*	3488.41	7.5 *3*	σ(n,γ)=0.72 mb *3* (96Ra04).
3534.4 *4*	4591.72	0.15 *3*	σ(n,γ)=0.014 mb *3* (96Ra04).
3578.6 *5*	5623.13	0.09 *2*	σ(n,γ)=0.009 mb *2* (96Ra04).
3586.23 *6*	3586.54	3.04 *12*	σ(n,γ)=0.290 mb *12* (96Ra04).
3589.47 *8*	3589.80	1.87 *7*	σ(n,γ)=0.178 mb *7* (96Ra04).
3607.8 *3*	4591.72	0.22 *3*	σ(n,γ)=0.021 mb *3* (96Ra04).
3679.91 *23*	3680.17	0.91 *6*	σ(n,γ)=0.087 mb *6* (96Ra04).
3711.0 *5*	5555.34	0.13 *3*	σ(n,γ)=0.012 mb *3* (96Ra04).
3741.44 *11*	5936.13	0.61 *5*	σ(n,γ)=0.058 mb *5* (96Ra04).
3823.05 *9*	6017.78	1.11 *6*	σ(n,γ)=0.106 mb *6* (96Ra04).
3891.39 *25*	5936.13	0.19 *3*	σ(n,γ)=0.018 mb *3* (96Ra04).
3894.2 *4*	5939.10	0.13 *3*	σ(n,γ)=0.012 mb *3* (96Ra04).
x3916.9 *5*		0.08 *3*	σ(n,γ)=0.008 mb *3* (96Ra04).
3964.85 *4*	5936.13	4.62 *17*	σ(n,γ)=0.441 mb *16* (96Ra04).
3973.47 *20*	6017.78	0.25 *3*	σ(n,γ)=0.024 mb *3* (96Ra04).
4009.3 *5*	5319.17	0.10 *3*	σ(n,γ)=0.010 mb *3* (96Ra04).
4046.71 *23*	6017.78	0.38 *3*	σ(n,γ)=0.036 mb *3* (96Ra04).
4070.0 *6*	4892.76	0.07 *2*	σ(n,γ)=0.007 mb *2* (96Ra04).
4081.77 *10*	4082.17	0.57 *4*	σ(n,γ)=0.054 mb *4* (96Ra04).
4092.2 *4*	5936.13	0.18 *3*	σ(n,γ)=0.017 mb *3* (96Ra04).

Continued on next page (footnotes at end of table)

^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12 (continued)

γ(^{20}F) (continued)

Eγ†	E(level)	Iγ§#	Comments
4095.01 *23*	5939.10	0.29 *3*	σ(n,γ)=0.028 mb *3* (96Ra04).
4173.54 *5*	6017.78	1.75 *6*	σ(n,γ)=0.167 mb *6* (96Ra04).
4200.56 *7*	6044.92	1.13 *6*	σ(n,γ)=0.108 mb *6* (96Ra04).
4225.8 *7*	5282.79	0.06 *1*	σ(n,γ)=0.006 mb *1* (96Ra04).
4245.65 *8*	5555.34	0.97 *5*	σ(n,γ)=0.093 mb *5* (96Ra04).
4262.5 *9*	5319.17	0.03 *1*	σ(n,γ)=0.003 mb *1* (96Ra04).
4313.29 *25*	5623.13	0.19 *3*	σ(n,γ)=0.018 mb *3* (96Ra04).
4335.09 *13*	5319.17	0.49 *4*	σ(n,γ)=0.047 mb *4* (96Ra04).
4556.81 *4*	(6601.35)	5.47 *21*	σ(n,γ)=0.522 mb *20* (96Ra04).
4626.5 *5*	5936.13	0.08 *2*	σ(n,γ)=0.008 mb *2* (96Ra04).
4630.6 *9*	(6601.35)	0.06 *1*	σ(n,γ)=0.006 mb *1* (96Ra04).
4639.0 *4*	5623.13	0.24 *4*	σ(n,γ)=0.023 mb *4* (96Ra04).
4708.19 *12*	6017.78	0.54 *4*	σ(n,γ)=0.052 mb *4* (96Ra04).
4735.22 *10*	6044.92	0.57 *4*	σ(n,γ)=0.054 mb *4* (96Ra04).
4757.02 *5*	(6601.35)	1.98 *8*	σ(n,γ)=0.189 mb *8* (96Ra04).
4878.8 *6*	5936.13	0.09 *2*	σ(n,γ)=0.009 mb *2* (96Ra04).
4899.2 *9*	5555.34	0.07 *2*	σ(n,γ)=0.007 mb *2* (96Ra04).
4951.91 *25*	5936.13	0.62 *7*	σ(n,γ)=0.059 mb *6* (96Ra04).
4954.5 *7*	5939.10	0.22 *3*	σ(n,γ)=0.021 mb *3* (96Ra04).
4960.3 *4*	6017.78	0.28 *3*	σ(n,γ)=0.027 mb *3* (96Ra04).
5033.50 *4*	6017.78	6.50 *25*	σ(n,γ)=0.620 mb *24* (96Ra04).
5279.27 *10*	5936.13	4.42 *21*	σ(n,γ)=0.422 mb *20* (96Ra04).
5282.1 *6*	5282.79	0.08 *2*	σ(n,γ)=0.008 mb *2* (96Ra04).
5291.40 *6*	(6601.35)	2.47 *11*	σ(n,γ)=0.236 mb *10* (96Ra04).
5318.32 *25*	5319.17	0.20 *3*	σ(n,γ)=0.019 mb *3* (96Ra04).
5360.93 *10*	6017.78	1.05 *5*	σ(n,γ)=0.119 mb *5* (96Ra04).
5543.67 *4*	(6601.35)	4.30 *17*	σ(n,γ)=0.410 mb *16* (96Ra04).
5554.59 *11*	5555.34	0.54 *4*	σ(n,γ)=0.052 mb *4* (96Ra04).
5616.82 *7*	(6601.35)	1.45 *6*	σ(n,γ)=0.138 mb *6* (96Ra04).
5622.5 *6*	5623.13	0.08 *2*	σ(n,γ)=0.008 mb *2* (96Ra04).
5935.10 *11*	5936.13	1.02 *10*	σ(n,γ)=0.097 mb *10* (96Ra04).
5938.1 *7*	5939.10	0.12 *3*	σ(n,γ)=0.011 mb *3* (96Ra04).
6016.72 *6*	6017.78	9.9 *5*	σ(n,γ)=0.94 mb *4* (96Ra04).
6600.08 *8*	(6601.35)	9.9 *5*	σ(n,γ)=0.94 mb *4* (96Ra04).

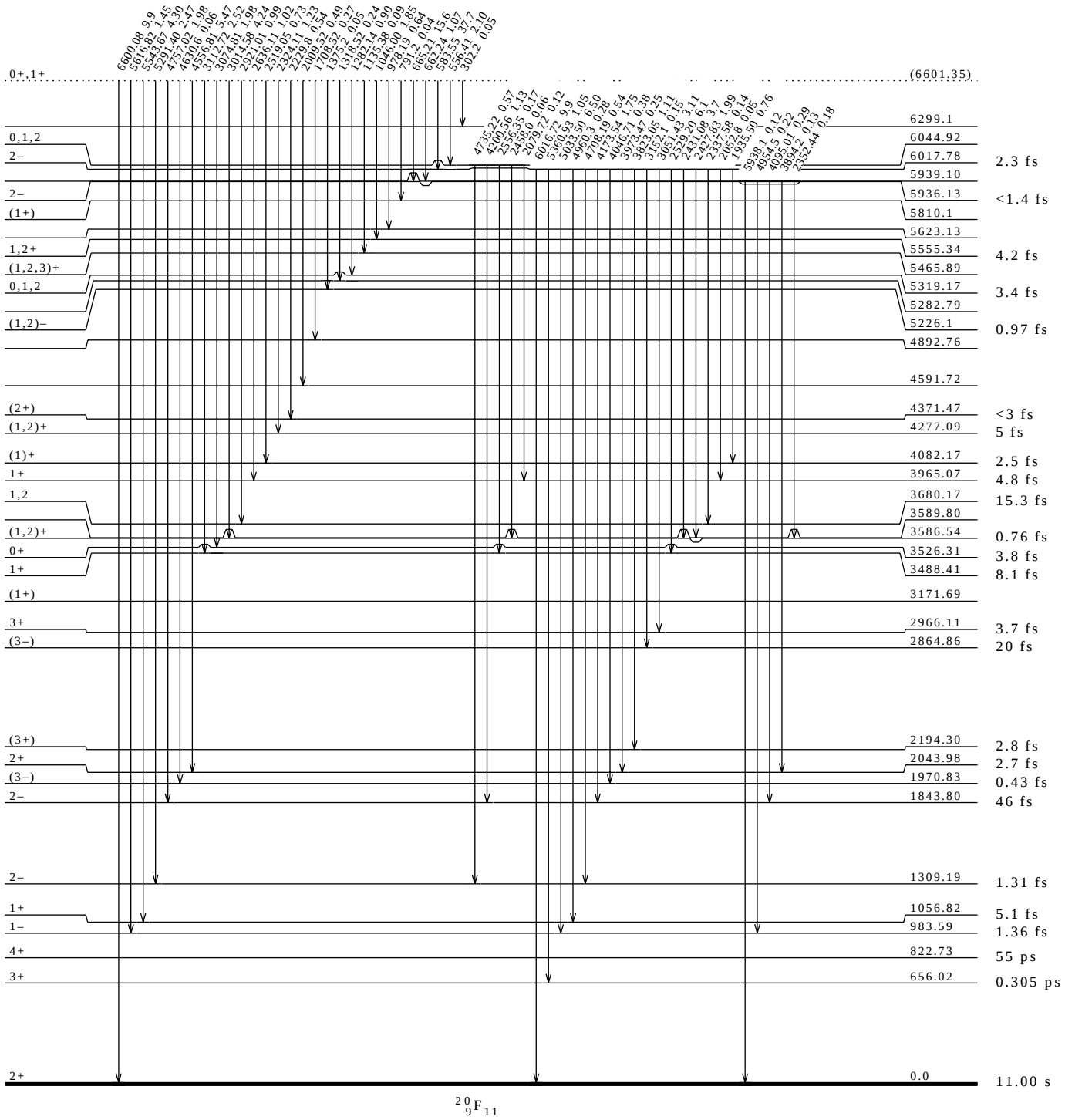
† From 96Ra04.
‡ From 96FiZY.
§ Intensities per 100 neutron captures. Values deduced from σ(n,γ) of 96Ra04.
# For intensity per 100 neutron captures, multiply by 1.
x γ ray not placed in level scheme.

$^{20}_{9}F_{11}$

^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12 (continued)

Level Scheme

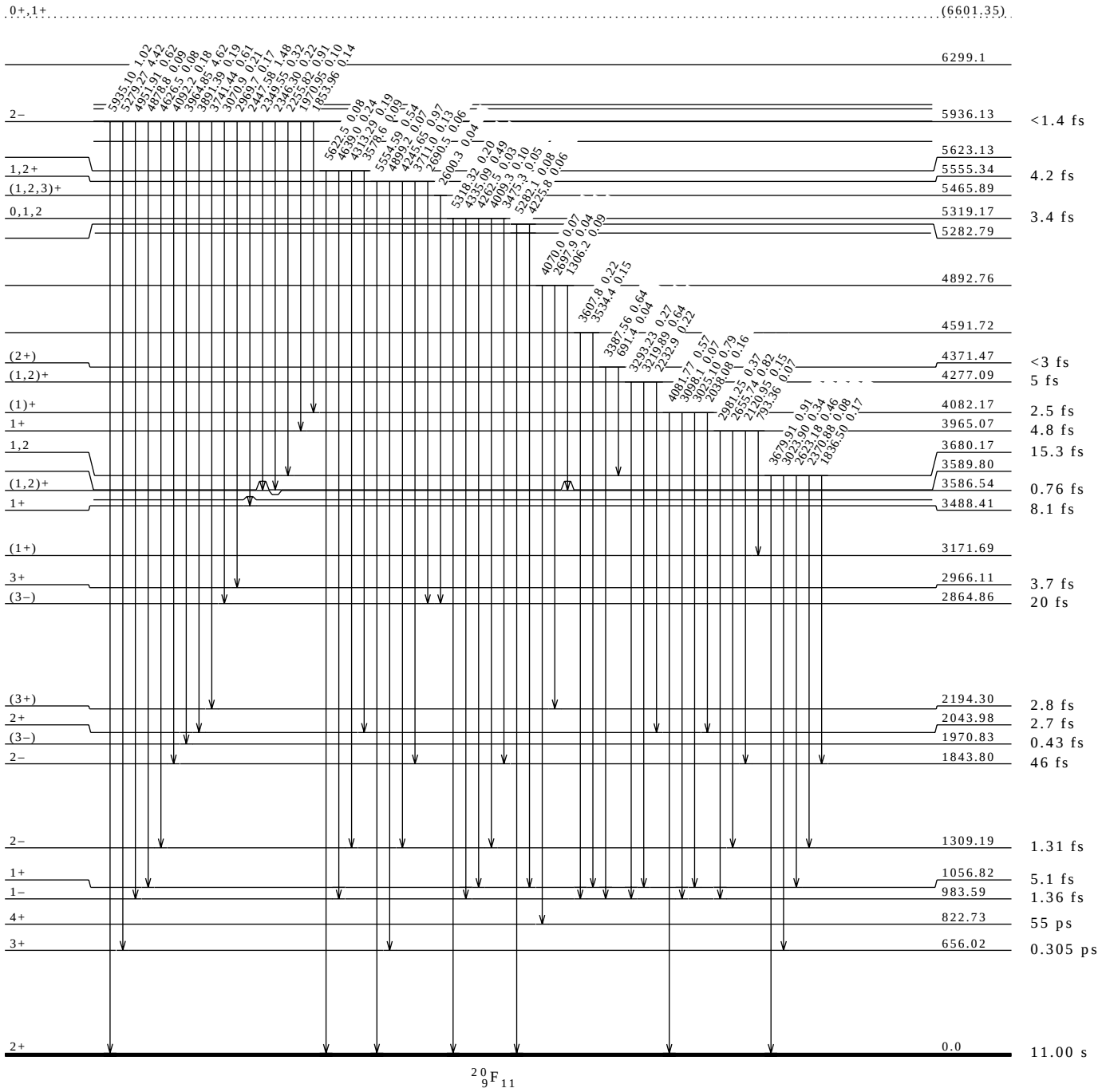
Intensities: I(γ+ce) per 100 parent decays



^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



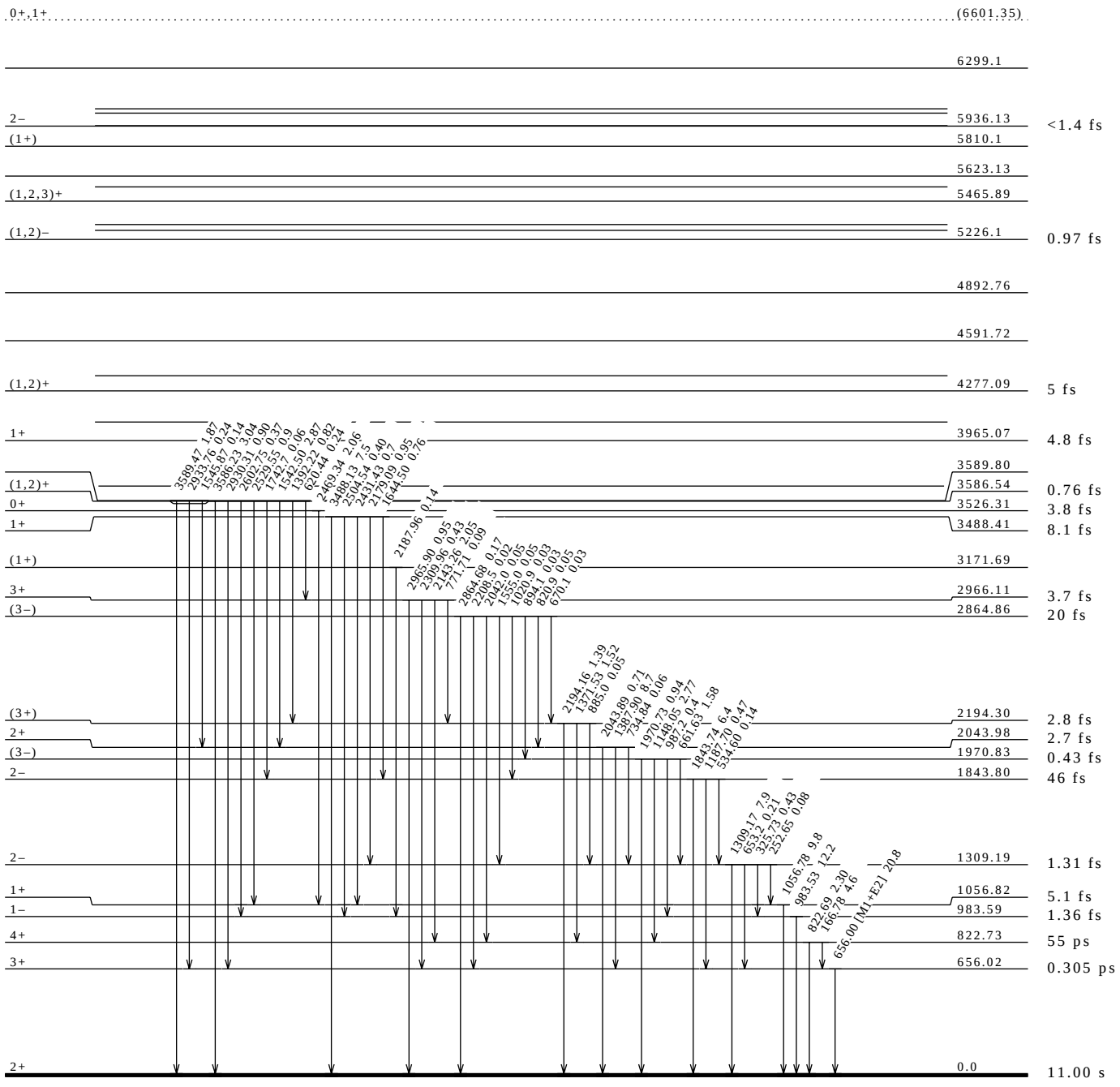
$^{20}_{9}F_{11}$

$^{20}_{9}F_{11}$

^{19}F(n,γ) E=thermal 96Ra04,86Ke15,83Hu12 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



$^{20}_{9}F_{11}$

$^{21}_{10}Ne_{11}$

^{20}Ne(n,γ) E=thermal 86Pr05

Target Jπ=0+.

Others: 70Se14, 71Be34.

86Pr05: measured Eγ, Iγ for energy rang 1.8 to 10 MeV with a high– resolution pair spectrometer; results differ significantly with those reported previously. Deduced neutron separation energy S(n)=6761.16 keV *4* with improved precision.

Other measured S(n)=6759.5 keV *5* (71Be34), 6760.8 keV *15* (70Se14).

Evaluated S(n)=6761.11 keV *4* (95Au04).

Measured 2036.21–keV γ–ray production cross section, σ(n,γ)= 27 mb *3* (86Pr05).

^{21}Ne Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	3/2+	stable	
350.728 *8*	5/2+	7.17 ps *12*	
2788.83 *8*	1/2–	81 ps *5*	
2794.14 *5*	1/2+	5.2 fs *6*	
3663.67 *10*	3/2–	65 fs *6*	
4684.5 *2*	3/2+	11 fs *3*	
4725.36 *4*	3/2–	7 fs *3*	
5689.77 *5*	1/2–	6 fs *3*	
5992.56 *5*	3/2–	<13 fs	
(6761.11§ *4*)	1/2+		Jπ: from s–wave neutron capture.

† From least–squares fit to Eγ data, except as noted.

‡ From 96FiZY, except as noted.

§ From evaluated s(n) (95Au04).

γ(^{21}Ne)

Eγ	E(level)	Iγ‡@	Mult.#	δ#	Comments
350.72† *6*	350.728	62.0 *10*	(M1+E2)	–0.074 *4*	
769.06† *23*	(6761.11)	0.71§ *4*			
1071.90† *20*	(6761.11)	14.1§ *1*			
1931.08 *6*	4725.36	16.4 *6*			Iγ: 16.4 *6* (86Pr05).
2036.21† *20*	(6761.11)	76.8§ *10*			Eγ: 2035.67 *4* (86Pr05). Iγ: 73.8 *10* (86Pr05). σ(n,γ)=27 mb *3* (86Pr05).
2077.23†& *20*	(6761.11)	0.57 *7*			Eγ,Iγ: from intensity balance given by evaluator.
2437.84 *25*	2788.83	1.0 *2*	(M2+E3)	+0.12 *3*	Iγ: 1.0 *2* (86Pr05).
2793.94 *5*	2794.14	25.0 *3*			Iγ: 25.0 *3* (86Pr05).
2895.32 *10*	5689.77	8.0 *8*			Iγ: 7.0 *2* (86Pr05).
3098.3† *3*	(6761.11)	0.24§ *6*			Eγ: 3097.25 *10* (86Pr05). Iγ: 0.23 *6* (86Pr05).
3311.92 *25*	3663.67	0.17 *5*	(E1+M2)	+0.05 *7*	Iγ: 0.17 *5* (86Pr05).
3967.13† *20*	(6761.11)	0.41§ *6*			Eγ: 3966.51 *25* (86Pr05). Iγ: 0.39 *6* (86Pr05).
3971.72† *25*	(6761.11)	1.1§ *1*			Eγ: 3971.98 *15* (86Pr05). Iγ: 1.08 *8* (86Pr05).
4333.19 *25*	4684.5	0.32 *4*			Iγ: 0.32 *4* (86Pr05).
4374.13 *6*	4725.36	60 *7*			Iγ: 52.9 *6* (86Pr05).
4683.62 *25*	4684.5	0.25 *3*			Iγ: 0.25 *3* (86Pr05).
4725.10 *25*	4725.36	0.14 *2*			Iγ: 0.14 *2* (86Pr05).
5641.00 *25*	5992.56	0.24 *2*			Iγ: 0.24 *2* (86Pr05).
5688.97 *6*	5689.77	6.1 *2*			Iγ: 5.95 *8* (86Pr05).
5991.71 *13*	5992.56	0.44 *3*			Iγ: 0.44 *3* (86Pr05).
6409.87† *20*	(6761.11)	0.5§ *3*			Eγ: 6409.39 *12* (86Pr05). Iγ: o.5 3 (86Pr05).
6760.53† *20*	(6761.11)	6.1§ *1*			Eγ: 6760.06 *6* (86Pr05). Iγ: 5.84 *7* (86Pr05).

† From level–eneregy differences.

‡ Intensities per 100 neutron captures. Primary γ intensities from 86Pr05 are reevaluated(see 90En08). Second γ intensities are reevaluated and from γ intensities balance at each level.

§ From values evaluated by 90En08.

Footnotes continued on next page

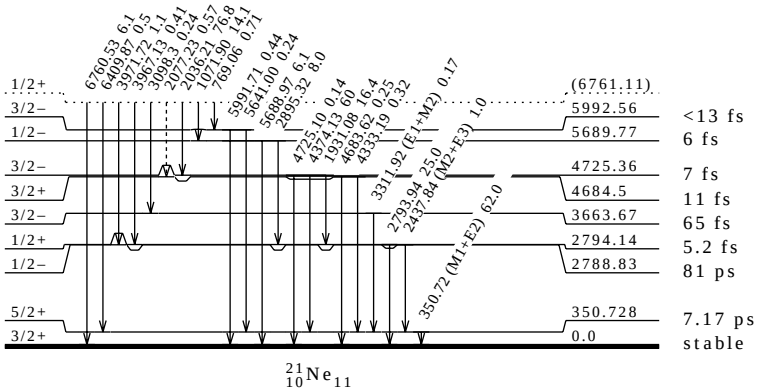
^{20}Ne(n,γ) E=thermal 86Pr05 (continued)

γ(^{21}Ne) (continued)

From 96FiZY.
@ For intensity per 100 neutron captures, multiply by 1.
& Placement of transition in the level scheme is uncertain.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



$^{21}_{10}Ne_{11}$

^{21}Ne(n,γ) E=thermal 86Pr05

Other: 71Be34.
Target Jπ=3/2+.
86Pr05: measured Eγ, Iγ for energy rang 1.8 to 10 MeV with a high− resolution pair spectrometer; deduced neutron separation energy S(n)=10364.4 keV *3* with improved precision.
Other measured S(n)=10362.0 keV *33* (71Be34).
Evaluated S(n)=10363.95 keV *22* (95Au04).

^{22}Ne Levels

E(level)†	Jπ†	$T_{1/2}$†	Comments
0.0	0+	stable	
1274.542 *7*	2+	3.63 ps *5*	
3351			
5515			
5917			
6344			
10363.95 *22*	1+,2+		E(level): from evaluated s(n) (95Au04). Jπ: from s−wave neutron capture.

† From 96FiZY, except as noted.

γ(^{22}Ne)

Eγ†	E(level)	Iγ‡#	Mult.§	Comments
1274.53 *2*	1274.542	0.8 *2*	E2	Eγ: 1274.58 (86Pr05).
x4884.85 *83*		1.3 *5*		
x5420.64 *75*		1.8 *5*		
x5920.5 *17*		1.0 *5*		
9087.79 *25*	10363.95	0.8 *2*		Eγ: 9087.79 *25* (86Pr05).

Footnotes continued on next page

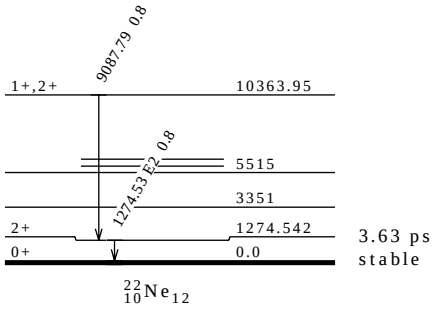
^{21}Ne(n,γ) E=thermal 86Pr05 (continued)

γ(^{22}Ne) (continued)

† From level–eneregy differences.
‡ Relative intensities.
§ From 96FiZY.
# For intensity per 100 neutron captures, multiply by 1.
x γ ray not placed in level scheme.

Level Scheme

Intensities: relative Iγ



^{22}Ne(n,γ) E=thermal 86Pr05

Target Jπ=0+.
Others: 70Se14, 71Be34.
86Pr05: measured Eγ, Iγ for energy rang 1.8 to 10 MeV with a high– resolution pair spectrometer; results differ significantly with those reported previously. Deduced neutron separation energy S(n)=5200.65 keV *12* with improved precision.
Other measured S(n)=5199.1 keV *7* (71Be34), 5200.2 keV *20* (70Se14).
Evaluated S(n)=5200.62 keV *12* (95Au04).
Measured 1980.54–keV γ–ray production cross section, σ(n,γ)= 25 mb *4* (86Pr05).

^{23}Ne Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	5/2+	37.24 s *12*	
1017.0 *2*	1/2+	178 ps *10*	
3220.66 *16*	3/2–	<70 fs	
3836.4 *3*	1/2–	<70 fs	
(5200.62§ *12*)	1/2+		Jπ: from s–wave neutron capture.

† From Eγ's, except as noted.
‡ From 96FiZY, except as noted.
§ From evaluated s(n) (95Au04).

γ(^{23}Ne)

Eγ†	E(level)	Iγ‡&	Mult.@	Comments
1016.94 *13*	1017.0	38.8 *40*		
1364.8 *3*	(5200.62)	22# *3*		
1980.54 *17*	(5200.62)	75# *4*		Eγ: 1979.89 *6* (86Pr05). σ(n,γ)=25 mb *4* (86Pr05).
2203.58 *6*	3220.66	14§ *3*		Iγ(2203.58γ):Iγ(3220.42γ)=100 *3*:24 *3* (96FiZY).

Continued on next page (footnotes at end of table)

$^{23}_{10}Ne_{13}$

^{22}Ne(n,γ) E=thermal 86Pr05 (continued)

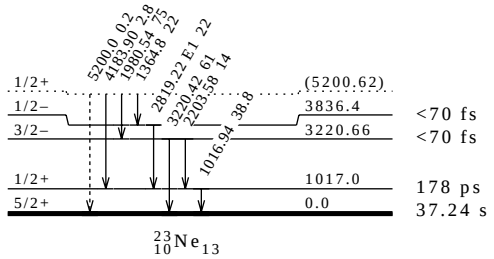
γ(^{23}Ne) (continued)

Eγ†	E(level)	Iγ‡&	Mult.@	Comments
2819.22 *16*	3836.4	22 *3*	E1	
3220.42 *16*	3220.66	61§ *3*		See notes of 2203.58–γ.
4183.90 *17*	(5200.62)	2.8# *14*		Eγ: 4183.20 *25* (86Pr05).
5200.0a *1*	(5200.62)	0.2 *1*		Eγ,Iγ: intensity balance given by evaluator.

† From level–eneregy differences, except as noted.
‡ Intensities per 100 neutron captures. Primary γ intensities from 86Pr05 are reevaluated (see 98En04). Second γ intensities are from γ intensities balance at each level.
§ Relative intensities are from 96FiZY and renormalized to γ–intensities balance.
# From 98En04.
@ From 96FiZY.
& For intensity per 100 neutron captures, multiply by 1.
a Placement of transition in the level scheme is uncertain.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



$^{23}_{10}Ne_{13}$

$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12

Target Jπ=3/2+.

83Hu11: measured Eγ and Iγ with curved crystal and Ge(Li) spectrometer ; deduced neutron separation energy S(n)=6959.73 keV *14*.

83Ti02: measured Eγ and Iγ with Ge(Li)–NaI(Tl) and Ge(Li) pair spectro meter; deduced neutron separation energy S(n)=6959.42 keV *8*.

87Zh12: measured Eγ and Iγ with Ge(Li)–NaI(Tl) spectrometer; deduced neutron separation energy S(n)=6959.51 keV *21*.

Evaluated neutron separation energy S(n)=6959.44 keV *5* (95Au04).

^{24}Na Levels

E(level)†	Jπ‡	$T_{1/2}$‡	Comments
0.0	4+	14.9590 h *12*	%β⁻=100.
472.207 *9*	1+	20.20 ms *7*	%IT=99.95; %β⁻=0.05.
563.200 *12*	2+	36 ps *6*	
1341.43 *2*	2+	60 fs *20*	
1344.65 *2*	3(+)	26 fs *6*	
1346.63 *2*	1+	4.4 ps *3*	
1846.01 *3*	2+	180 fs *25*	
1885.51 *5*	3+	26 fs *5*	
1961?# *1*			
1977?# *1*			
2513.51 *5*	3+	10 fs *3*	
2562.3?§ *5*	4+,(2+)	<17 fs	
2903.94 *5*	3+	35 fs *6*	
2977.83 *4*	2+,(3+)	<17 fs	
3371.84 *4*	2−	13 fs *3*	
3413.25 *5*	1+	<14 fs	
3589.26 *10*	1+	<6 fs	
3628.25 *11*	3+	<14 fs	
3655.97 *9*	2+,(1+)	<14 fs	
3681.79 *8*	0+	<14 fs	
3745.09 *7*	3−	<17 fs	
3866?# *1*			
3935.7?§ *4*	(0+ to 4+)	<14 fs	
3943.3?§ *3*	(2+ to 6+)	<14 fs	
3977.32 *7*	(1−,2+)	<14 fs	
4048.49 *16*	0−	70 fs *30*	
4144.9?§ *11*	4−,(5−)	<20 fs	
4185.6?§ *7*	2+	<14 fs	
4196.3 *2*	(1,2)−	<10 fs	
4207.19 *4*	2+	23 fs *6*	
4441.54 *11*	2−	<35 fs	
4562.06 *6*	1−	<10 fs	
4621.5 *2*		<10 fs	Seen also in (d,pγ).
4692.2?# *4*		<25 fs	
4750.94 *10*	2−		
4891.35?§ *16*			
4939.40?§ *11*	(1,3)−		
5031.02?§ *9*			
5044.90 *11*	(1,2,3)−	<30 fs	
5059.72 *6*	2−	<50 fs	
5117.41?# *16*	1−		
5192.44 *16*	3−	<7 fs	
5250 *2*	3−	<50 fs	
5339.06 *8*	2−	<14 fs	
5397.19?# *11*	(1,3)−		
5478.96 *9*	1−	<50 fs	
5809.66?# *12*			
5862.9?# *2*			
5918.46?#			
5953.16?§ *10*			
5965.6?§ *14*	0+	<7 fs	
6072.83 *13*	1+		
6222.4?# *3*			
6247.62 *12*		<10 fs	

Continued on next page (footnotes at end of table)

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

^{24}Na Levels (continued)

E(level)†	Jπ‡	Comments
(6959.44 *5*)	1+,2+	E(level): from evaluated S(n) (95Au04). Jπ: from s–wave neutron capture.

† From 90En08, except as noted.
‡ From 96FiZY.
§ Seen only in 83Ti02.
# Seen only in 83Hu11.

γ(^{24}Na)

Eγ†	E(level)	Iγ‡#&	Mult.@	δ@	Comments
90.9921 *14*	563.200	43.9 *31*			Iγ: 41.8 *63* (83Hu11), 48 *5* (83Ti02), 41 *5* (87Zh12).
472.2023 *8*	472.207	90 *3*	M3		Iγ: 93.9 *74* (83Hu11), 90 *4* (83Ti02), 81 *5* (87Zh12).
499.383 *5*	1846.01	2.4 *3*			Iγ: 2.4 *7* (83Hu11), 1.5 *3* (83Ti02), 2.8 *3* (87Zh12).
501.30 *3*	1846.01	0.58 *8*			Iγ: 0.66 *6* (83Hu11), 0.50 *5* (83Ti02).
504.57[a] *4*	1846.01				Iγ: 0.27 *3* (83Hu11).
552.44[a] *8*	2513.51				Iγ: 0.127 *18* (83Hu11).
563.186 *8*	563.200	2.00 *59*			Iγ: 1.7 *3* (83Hu11), 2.75 *13* (83Ti02), 1.41 *10* (87Zh12).
614.26[a] *5*	1961?				Iγ: 0.134 *16* (83Hu11).
711.968 *10*	(6959.44)	0.7 *2*			Iγ: 0.90 *8* (83Hu11), 0.57 *9* (83Ti02), 0.83 *12* (87Zh12).
737.55[a] *13*	(6959.44)				Iγ: 0.019 *6* (83Hu11).
773.9[a] *3*	4750.94				Iγ: 0.073 *3* (83Hu11).
778.22 *23*	1341.43	0.99 *9*			Iγ: 1.09 *10* (83Hu11), 0.87 *4* (83Ti02), 1.00 *20* (87Zh12).
781.402 *15*	1344.65	3.0 *4*			Iγ: 3.4 *3* (83Hu11), 2.51 *9* (83Ti02), 3.09 *22* (87Zh12).
793.84[a] *6*	4207.19				Iγ: 0.39 *5* (83Hu11).
810.4[a] *3*	5250				Iγ: 0.018 *8* (83Hu11).
820.27[a] *21*	6072.83				Iγ: 0.032 *9* (83Hu11).
835.31 *3*	4207.19	2.6 *5*			Iγ: 2.08 *19* (83Hu11), 3.76 *15* (83Ti02), 1.99 *10* (87Zh12).
852.32[a] *7*	4441.54				Iγ: 0.088 *15* (83Hu11).
	5059.72				Iγ: 0.088 *15* (83Hu11).
857.0[a] *4*	3371.84				Iγ: 0.08 *6* (83Hu11).
858.1[a] *5*	5918.46?				Iγ: 0.13 *7* (83Hu11).
863.37[a] *20*	5059.72				Iγ: 0.053 *23* (83Hu11).
869.205 *12*	1341.43	19.3 *20*			Iγ: 21.9 *19* (83Hu11), 17.3 *7* (83Ti02), 18.8 *8* (87Zh12).
874.390 *7*	1346.63	13.6 *14*			Iγ: 15.4 *14* (83Hu11), 12.0 *5* (83Ti02), 13.5 *6* (87Zh12).
886.750 *11*	(6959.44)	0.80 *6*			Iγ: 0.75 *9* (83Hu11), 0.84 *7* (83Ti02), 0.868 (87Zh12).
906.20[a] *20*	4562.06				Iγ: 0.068 *17* (83Hu11).
1005.929[a] *22*	4750.94				Iγ: 0.48 *5* (83Hu11).
1006.24[§a] *5*	(6959.44)				Iγ: 0.410 *19* (83Ti02).
1028.30[a] *11*	4441.54				Iγ: 0.058 *11* (83Hu11).
1035.3[a] *4*	4692.2?				Iγ: 0.012 *6* (83Hu11).
1041.247[a] *20*	(6959.44)				Iγ: 0.29 *3* (83Hu11).
1092.21[a] *3*	2977.83				Iγ: 0.29 *3* (83Hu11).
1095.09[a] *7*	4750.94				Iγ: 0.124 *16* (83Hu11).
1097.2[a] *3*	(6959.44)				Iγ: 0.038 *16* (83Hu11).
1150.00[a] *2*	(6959.44)				Iγ: 0.92 *9* (83Hu11).
1208.3[a] *3*	4621.5				Iγ: 0.038 *17* (83Hu11).
1217.69[§a] *24*	2562.3?				Iγ: 0.26 *4* (83Ti02).
1218.2[a] *5*	4196.3				Iγ: 0.020 *11* (83Hu11).
1229.40 *4*	4207.19	0.28 *3*			Iγ: 0.28 *3* (83Hu11), 0.6 *4* (83Ti02), 0.24 *4* (87Zh12).
1247.511[a] *22*	5809.66?				Iγ: 0.224 *23* (83Hu11).
1282.815 *9*	1846.01	1.00 *3*			Iγ: 1.00 *10* (83Hu11), 1.00 *6* (83Ti02), 1.01 *7* (87Zh12).
1314.57[a] *13*	5059.72				Iγ: 0.065 *10* (83Hu11).
1322.339 *11*	1885.51	1.13 *7*			Iγ: 1.15 *12* (83Hu11), 1.22 *7* (83Ti02), 1.12 *8* (87Zh12).
1337.87 *4*	4750.94	0.60 *5*			Iγ: 0.65 *7* (83Hu11), 0.55 *4* (83Ti02).
1344.615 *10*	1344.65	4.1 *2*	D(+Q)	0.00 *4*	Iγ: 4.1 *7* (83Hu11), 4.12 *23* (83Ti02), 3.96 *30* (87Zh12).
1373.37 *17*	1846.01	1.20 *40*	M1+E2	+0.18 *7*	Iγ: 0.65 *7* (83Hu11), 1.57 *5* (83Ti02), 1.35 *15* (87Zh12).
1455.4[a] *4*	5044.90				Iγ: 0.034 *19* (83Hu11).
1480.47 *14*	(6959.44)	0.36 *3*			Iγ: 0.34 *4* (83Hu11), 0.36 *3* (83Ti02), 0.29 *10* (87Zh12).
1486.25[a] *6*	3371.84				Iγ: 0.23 *3* (83Hu11).
1490.1[a] *6*	1961?				Iγ: 0.021 *8* (83Hu11).

Continued on next page (footnotes at end of table)

$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

γ(^{24}Na) (continued)

Eγ†	E(level)	Iγ‡#&	Comments
1504.90[a] *14*	1977?		Iγ: 0.45 *5* (83Hu11).
1559.42 *6*	2903.94	0.30 *2*	Iγ: 0.31 *3* (83Hu11), 0.302 *22* (83Ti02), 0.26 *4* (87Zh12).
1562.491 *24*	2903.94	0.51 *2*	Iγ: 0.51 *5* (83Hu11), 0.51 *3* (83Ti02), 0.31 *5* (87Zh12).
	(6959.44)		Iγ: 0.51 *5* (83Hu11).
1567.1[a] *4*	3413.25		Iγ: 0.145 *17* (83Hu11).
1570.17[a] *17*	5250		Iγ: 0.014 *2* (83Hu11).
1584.18[a] *18*	4562.06		Iγ: 0.047 *13* (83Hu11).
1620.49 *5*	(6959.44)	0.50 *5*	Iγ: 0.55 *6* (83Hu11), 0.65 *6* (83Ti02), 0.63 *8* (87Zh12).
1631.54[a] *8*	5044.90		Iγ: 0.19 *3* (83Hu11).
1633.6 *2*	2977.83	1.1 *1*	Iγ: 0.96 *20* (83Hu11), 1.2 *3* (83Ti02), 3.2 *5* (87Zh12).
1636.33 *4*	2977.83	5.1 *2*	Iγ: 5.0 *15* (83Hu11), 5.1 *3* (83Ti02), 5.2 *4* (87Zh12).
1693.83[a] *14*	4207.19		Iγ: 0.121 *16* (83Hu11).
1711.90[§a] *20*	(6959.44)		Iγ: 0.26 *5* (83Ti02).
1714.2[a] *3*	4692.2?		Iγ: 0.023 *13* (83Hu11).
1741.48[a] *24*	5397.19?		Iγ: 0.114 *23* (83Hu11).
1743.28[a] *16*	3589.26		Iγ: 0.068 *7* (83Hu11).
1767.27[a] *14*	(6959.44)		Iγ: 0.053 *15* (83Hu11).
1770.23[a] *16*	3655.97		Iγ: 0.067 *10* (83Hu11).
1773.14[a] *6*	4750.94		Iγ: 0.21 *3* (83Hu11).
1831.92[a] *16*	5809.66?		Iγ: 0.179 *18* (83Hu11).
1842.26[a] *10*	(6959.44)		Iγ: 0.45 *10* (83Hu11).
1846.9[a] *3*	4750.94		Iγ: 0.10 *3* (83Hu11).
1859.8[a] *4*	3745.09		Iγ: 0.044 *18* (83Ti02).
1875.6[a] *4*	6072.83		Iγ: 0.028 *9* (83Hu11).
1885.40 *5*	1885.51	0.70 *6*	Iγ: 0.64 *4* (83Hu11), 0.90 *7* (83Ti02), 0.67 *7* (87Zh12).
1899.10[a] *10*	3745.09		Iγ: 0.7 *3* (83Hu11).
1899.80 *10*	(6959.44)	1.2 *5*	Iγ: 0.7 *3* (83Hu11), 1.79 *13* (83Ti02), 1.59 *12* (87Zh12).
1914.64[§] *4*	(6959.44)	1.21 *5*	Iγ: 1.14 *5* (83Hu11), 1.26 *9* (83Ti02), 1.02 *9* (87Zh12).
1928.26[a] *7*	4441.54		Iγ: 0.91 *4* (83Hu11).
1928.36[§a] *4*	(6959.44)		Iγ: 1.05 *8* (83Ti02).
1950.14 *4*	2513.51	1.9 *3*	Iγ: 1.69 *8* (83Hu11), 2.25 *17* (83Ti02), 2.03 *19* (87Zh12).
2009.69[§a] *17*	5953.16?		Iγ: 0.179 *20* (83Ti02).
2016.4[§a] *4*	5953.16?		Iγ: 0.078 *25* (83Ti02).
2019.60[a] *14*	3866?		Iγ: 0.49 *8* (83Hu11).
2020.07[§a] *6*	(6959.44)		Iγ: 0.72 *6* (83Ti02).
2025.20 *7*	3371.84	6.7 *2*	Iγ: 6.7 *3* (83Hu11), 6.5 *5* (83Ti02), 7.1 *4* (87Zh12).
2027.30[§a] *11*	3371.84		Iγ: 0.73 *9* (83Ti02).
2030.17 *8*	3371.84	4.4 *1*	Iγ: 4.34 *20* (83Hu11), 4.5 *3* (83Ti02), 1.4 *3* (87Zh12).
2062.5[§a] *4*	6247.62		Iγ: 0.072 *23* (83Ti02).
2066.37 *8*	3413.25	0.31 *8*	Iγ: 0.231 *18* (83Hu11), 0.39 *3* (83Ti02), 0.50 *9* (87Zh12).
2071.76 *9*	3413.25	1.20 *5*	Iγ: 1.15 *5* (83Hu11), 1.24 *10* (83Ti02), 1.20 *15* (87Zh12).
2106.5[a] *5*	4621.5		Iγ: 0.22 *7* (83Hu11).
	5478.96		Iγ: 0.022 *7* (83Hu11).
2118.0[a] *4*	5862.9?		Iγ: 0.020 *7* (83Hu11).
2131.35[a] *4*	3977.32		Iγ: 0.046 *5* (83Hu11).
2208.46 *3*	(6959.44)	5.7 *3*	Iγ: 5.22 *24* (83Hu11), 5.7 *5* (83Ti02), 5.43 *28* (87Zh12).
2220.00[a] *7*	5809.66?		Iγ: 0.178 *10* (83Hu11).
2237.55[§a] *13*	4750.94		Iγ: 0.215 *25* (83Ti02).
2242.74 *16*	3589.26	0.13 *3*	Iγ: 0.104 *8* (83Hu11), 0.169 *23* (83Ti02).
2247.91 *15*	3589.26	0.11 *1*	Iγ: 0.109 *14* (83Hu11), 0.116 *20* (83Ti02).
2266.4[a] *6*	(6959.44)		Iγ: 0.049 *9* (83Hu11).
2270.3[a] *6*	6247.62		Iγ: 0.031 *7* (83Hu11).
2271.3[§a] *3*	5953.16?		Iγ: 0.067 *12* (83Ti02).
2286.62 *8*	3628.25	0.15 *1*	Iγ: 0.157 *10* (83Hu11), 0.12 *20* (83Ti02).
2301.4[§] *6*	4185.6?		Iγ: 0.048 *19* (83Ti02).
2310.2 *4*	3655.97	0.05 *2*	Iγ: 0.034 *7* (83Hu11), 0.067 *19* (83Ti02).
	4196.3		Iγ: 0.034 *7* (83Hu11).
2314.4[a] *3*	3655.97		Iγ: 0.053 *7* (83Hu11).
2337.90 *10*	(6959.44)	0.17 *1*	Iγ: 0.166 *10* (83Hu11), 0.215 *25* (83Ti02).
2349.1[§a] *8*	4196.3		Iγ: 0.034 *17* (83Ti02).
2361.03 *6*	4207.19	1.68 *7*	Iγ: 1.64 *7* (83Hu11), 1.74 *15* (83Ti02).
2378.0[§a] *8*	4939.40?		Iγ: 0.028 *14* (83Ti02).
2397.39 *7*	(6959.44)	1.36 *6*	Iγ: 1.34 *6* (83Hu11), 1.26 *9* (83Ti02), 1.64 *17* (87Zh12).

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^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

γ(^{24}Na) (continued)

Eγ†	E(level)	Iγ‡#&	Comments
2400.60 *10*	3745.09	0.23 *6*	Iγ: 0.17 *8* (83Hu11), 0.29 *3* (83Ti02).
2403.80 *10*	3745.09	0.37 *11*	Iγ: 0.37 *11* (83Hu11), 0.4 *3* (83Ti02).
2414.53 *4*	2977.83	5.0 *2*	Iγ: 4.8 *4* (83Hu11), 5.0 *3* (83Ti02), 5.11 *25* (87Zh12).
2505.50 *4*	2977.83	3.4 *2*	Iγ: 3.23 *12* (83Hu11), 3.8 *3* (83Ti02), 3.43 *22* (87Zh12).
2517.88 *8*	(6959.44)	15.3 *12*	Iγ: 14.1 *5* (83Hu11), 15.3 *14* (83Ti02), 14.5 *8* (87Zh12).
2523.88[a] *14*	3866?		Iγ: 0.100 *7* (83Hu11).
2546.51[a] *21*	5918.46?		Iγ: 0.048 *11* (83Hu11).
2556.17[a] *9*	4441.54		Iγ: 0.100 *19*(83Hu11).
2587.7[a] *8*	4562.06		Iγ: 0.25 *4* (83Hu11).
2588.85[§a] *20*	3935.7?		Iγ: 0.251 *23* (83Ti02).
2591.55 *20*	6247.62	0.40 *3*	Iγ: 0.44 *4* (83Hu11), 0.38 *3* (83Ti02).
2595.56 *8*	4441.54	1.03 *2*	Iγ: 1.02 *5* (83Hu11), 1.04 *10* (83Ti02).
2630.59 *5*	3977.32	0.55 *2*	Iγ: 0.557 *22* (83Hu11), 0.54 *5* (83Ti02).
2657.5[a] *3*	6247.62		Iγ: 0.047 *5* (83Hu11).
2661.9[a] *3*	4621.5		Iγ: 0.044 *6* (83Hu11).
2701.2[a] *3*	4048.49		Iγ: 0.033 *4* (83Hu11).
2715.94 *5*	4562.06	0.56 *4*	Iγ: 0.59 *4* (83Hu11), 0.52 *3* (83Ti02).
2752.28 *8*	(6959.44)	10.2 *24*	Iγ: 13.1 *23* (83Hu11), 7.9 *9* (83Ti02), 9.9 *10* (87Zh12).
2762.59 *8*	(6959.44)	0.7 *2*	Iγ: 1.03 *23* (83Hu11), 0.52 *3* (83Ti02), 1.13 *5* (87Zh12).
2790.10[a] *15*	4750.94		Iγ: 0.104 *8* (83Hu11).
2808.54 *5*	3371.84	3.3 *1*	Iγ: 3.26 *12* (83Hu11), 3.4 *3* (83Ti02), 3.62 *28* (87Zh12).
2850.25 *8*	3413.25	0.27 *3*	Iγ: 0.25 *3* (83Hu11), 0.302 *21* (83Ti02), 0.32 *8* (87Zh12).
2860.39 *5*	4207.19	3.6 *1*	Iγ: 3.45 *17* (83Hu11), 3.7 *4* (83Ti02), 3.64 *29* (87Zh12).
2865.59[§] *3*	4750.94	2.9 *2*	Iγ: 2.9 *3* (83Ti02), 2.84 *25* (87Zh12).
2865.61 *6*	4207.19	2.8 *1*	Iγ: 2.7 *10* (83Hu11), 2.9 *3* (83Ti02), 2.84 *25* (87Zh12).
2875.7[a] *4*	6247.62		Iγ: 0.031 *15* (83Hu01).
2904.74 *6*	4750.94	1.20 *4*	Iγ: 1.23 *14* (83Hu11), 1.16 *12* (83Ti02), 1.08 *11* (87Zh12).
2911.01 *16*	(6959.44)	0.07 *1*	Iγ: 0.059 *5* (83Hu11), 0.076 *11* (83Ti02).
2941.03 *7*	3413.25	0.66 *2*	Iγ: 0.68 *4* (83Hu11), 0.65 *3* (83Ti02), 0.42 *7* (87Zh12).
2977.38[§a] *18*	2977.83		Iγ: 0.096 *10* (83Ti02).
2982.23 *7*	(6959.44)	2.8 *1*	Iγ: 2.76 *10* (83Hu11), 2.66 *11* (83Ti02), 2.70 *23* (87Zh12).
3025.95 *7*	3589.26	2.84 *4*	Iγ: 2.82 *10* (83Hu11), 2.86 *12* (83Ti02), 2.83 *21* (87Zh12).
3092.3 *5*	3655.97	0.38 *14*	Iγ: 0.23 *11* (83Hu11), 0.52 *3* (83Ti02).
3093.83[a] *12*	(6959.44)		Iγ: 0.55 *4* (83Hu11).
3096.65 *9*	4441.54	3.8 *1*	Iγ: 3.88 *14* (83Hu11), 3.70 *15* (83Ti02), 4.7 *4* (87Zh12).
3099.92 *9*	4441.54	2.9 *2*	Iγ: 3.10 *16* (83Hu11), 2.72 *12* (83Ti02), 2.26 *20* (87Zh12).
3117.11 *16*	3589.26	0.95 *6*	Iγ: 1.01 *4* (83Hu11), 0.88 *4* (83Ti02), 0.95 *10* (87Zh12).
3168.5[§a] *3*	6072.83		Iγ: 0.041 *9* (83Ti02).
3174.06 *13*	5059.72	0.053 *2*	Iγ: 0.054 *4* (83Hu11), 0.051 *7* (83Ti02).
3182.40 *20*	3745.09	0.25 *3*	Iγ: 0.25 *3* (83Hu11), 0.09 *19* (83Ti02).
3184.2[§a] *11*	3655.97		Iγ: 0.05 *6* (83Ti02).
3199.04[a] *10*	5044.90		Iγ: 0.189 *9* (83Hu11).
3209.70 *21*	3681.79	0.72 *2*	Iγ: 0.74 *4* (83Hu11), 0.71 *3* (83Ti02), 0.78 *9* (87Zh12).
3214.38[§] *6*	(6959.44)	1.08 *4*	Iγ: 1.06 *7* (83Hu11), 1.02 *4* (83Ti02), 1.11 *12* (87Zh12).
3231.62[a] *14*	5192.44		Iγ: 0.039 *3* (83Hu11).
3242.2[a] *9*	6222.4?		Iγ: 0.005 *2* (83Hu11).
3270.73[a] *24*	5117.41?		Iγ: 0.093 *6* (83Hu11).
3277.66[§] *6*	(6959.44)	0.77 *2*	Iγ: 0.73 *3* (83Hu11), 0.75 *3* (83Ti02), 0.73 *9* (87Zh12).
3295.6[a] *8*	5809.66?		Iγ: 0.005 *2* (83Hu11).
3303.47[§] *8*	(6959.44)	0.23 *1*	Iγ: 0.219 *9* (83Hu11), 0.225 *11* (83Ti02), 0.13 *3* (87Zh12).
3331.19[§] *8*	(6959.44)	0.24 *1*	Iγ: 0.227 *10* (83Hu11), 0.233 *11* (83Ti02), 0.35 *6* (87Zh12).
3343.50[§] *8*	6247.62	0.18 *1*	Iγ: 0.185 *12* (83Hu11), 0.217 *11* (83Ti02), 0.17 *4* (87Zh12).
3370.19[§] *6*	(6959.44)	2.8 *1*	Iγ: 2.8 *3* (83Hu11), 2.63 *9* (83Ti02), 2.77 *19* (87Zh12).
3409.7[a] *4*	4750.94		Iγ: 0.456 *17* (83Hu11).
3414.2 *3*	3977.32	0.86 *1*	Iγ: 0.85 *3*(83Hu11), 0.87 *3* (83Ti02), 0.76 *8* (87Zh12).
3492.94[a] *12*	5339.06		Iγ: 0.086 *5* (83Hu11).
3505.00 *10*	3977.32	1.30 *2*	Iγ: 1.31 *6* (83Hu11), 1.30 *4* (83Ti02), 1.44 *14* (87Zh12).
3546.20 *10*	(6959.44)	0.93 *3*	Iγ: 0.87 *4* (83Hu11), 0.91 *3* (83Ti02), 0.95 *10* (87Zh12).
3577.1 *12*	4048.49	0.06 *3*	Iγ: 0.030 *9* (83Hu11), 0.087 *10* (83Ti02).
3587.67 *10*	(6959.44)	12.1 *4*	Iγ: 11.4 *6* (83Hu11), 11.8 *4* (83Ti02), 12.3 *9* (87Zh12).
3628.45 *11*	3628.25	0.14 *1*	Iγ: 0.153 *8* (83Hu11), 0.120 *8* (83Ti02).
3632.70 *13*	4196.3	0.087 *3*	Iγ: 0.086 *5* (83Hu11), 0.089 *7* (83Ti02), 0.15 *4* (87Zh12).
	5478.96		Iγ: 0.086 *5* (83Hu11).

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^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

γ(^{24}Na) (continued)

Eγ†	E(level)	Iγ‡#&	Comments
3643.79 *11*	4207.19	1.32 *2*	Iγ: 1.32 *7* (83Hu11), 1.33 *4* (83Ti02), 1.32 *13* (87Zh12).
3698.22 *11*	5044.90	0.17 *1*	Iγ: 0.182 *10* (83Hu11), 0.165 *8* (83Ti02), 0.15 *4* (87Zh12).
3703.43 *11*	5044.90	0.40 *1*	Iγ: 0.413 *20* (83Hu11), 0.394 *14* (83Ti02), 0.39 *6* (87Zh12).
3712.79[a] *14*	5059.72		Iγ: 0.049 *3* (83Hu11).
3723.82[§a] *8*	4196.3		Iγ: 0.277 *11* (83Ti02).
3734.58[a] *12*	4207.19		Iγ: 0.071 *4* (83Hu11).
3744.32 *15*	3745.09	0.11 *7*	Iγ: 0.034 *2* (83Hu11), 0.19 *10* (83Ti02).
3770.78[a] *16*	5117.41?		Iγ: 0.097 *5* (83Hu11).
3776.7[a] *4*	5117.41?		Iγ: 0.013 *3* (83Hu11).
3878.29 *11*	4441.54	4.13 *5*	Iγ: 4.09 *20* (83Hu11), 4.17 *12* (83Ti02), 4.23 *27* (87Zh12).
3943.15[§a] *17*	3943.3?		Iγ: 0.098 *8* (83Ti02).
3969.02 *11*	4441.54	0.49 *8*	Iγ: 0.401 *20* (83Hu11), 0.57 *3* (83Ti02), 0.39 *6* (87Zh12).
3981.54 *11*	(6959.44)	13.5 *4*	Iγ: 12.8 *6* (83Hu11), 13.1 *4* (83Ti02), 13.7 *9* (87Zh12).
3997.71 *11*	5339.06	0.34 *2*	Iγ: 0.364 *18* (83Hu11), 0.324 *11* (83Ti02), 0.38 *5* (87Zh12).
4055.49[a] *20*	5397.19?		Iγ: 0.57 *11* (83Hu11).
4055.69[§] *8*	(6959.44)	0.4 *2*	Iγ: 0.23 *11*(83Hu11), 0.631 *19* (83Ti02), 0.61 *7* (87Zh12).
4057.8[§] *4*	4621.5	0.072[§] *20*	
4089.51 *12*	4562.06	0.38 *1*	Iγ: 0.382 *19* (83Hu11), 0.382 *13* (83Ti02), 0.35 *6* (87Zh12).
4107.7[§] *3*	5953.16?		Iγ: 0.029 *4* (83Ti02).
4137.49[§a] *12*	5478.96		Iγ: 0.133 *6* (83Ti02).
4144.9[§a] *5*	4144.9?		Iγ: 0.013 *10* (83Ti02).
4187.49 *11*	4750.94	1.44 *3*	Iγ: 1.41 *7* (83Hu11), 1.46 *4* (83Ti02), 1.46 *22* (87Zh12).
4226.38 *14*	6072.83	0.35 *2*	Iγ: 0.347 *2* (83Hu11), 0.033 *3* (83Ti02).
4245.69[a] *23*	6222.4?		Iγ: 0.014 *2* (83Hu11).
4278.75[a] *23*	4750.94		Iγ: 0.013 *1* (83Hu11).
4286.5[a] *6*	6247.62		Iγ: 0.004 *1* (83Hu11).
4361.57[a] *17*	6247.62		Iγ: 0.020 *1* (83Hu11).
4370.42[§a] *11*	4939.40?		Iγ: 0.101 *4* (83Ti02).
4376.02[a] *13*	6222.4?		Iγ: 0.098 *5* (83Hu11).
4445.75 *3*	(6959.44)	0.46 *1*	Iγ: 0.432 *22* (83Hu11), 0.443 *12* (83Ti02), 0.44 *6* (87Zh12).
4462.42[a] *4*	5809.66?		Iγ: 0.128 *7* (83Hu11).
4467.42[§a] *15*	5031.02?		Iγ: 0.287 *9* (83Ti02).
4481.41 *3*	5044.90	0.18 *1*	Iγ: 0.173 *9* (83Hu11), 0.186 *6* (83Ti02), 0.21 *4* (87Zh12).
4496.00 *3*	5059.72	0.38 *1*	Iγ: 0.371 *22* (83Hu11), 0.386 *12* (83Ti02), 0.41 *6* (87Zh12).
4521.23[a] *22*	5862.9?		Iγ: 0.015 *2* (83Hu11).
4553.0 *12*	5117.41?		Iγ: 0.039 *7* (83Hu11).
4586.94 *4*	5059.72	0.138 *2*	Iγ: 0.137 *7* (83Hu11), 0.139 *5* (83Ti02), 0.13 *3* (87Zh12).
4628.52 *12*	5192.44	0.045 *2*	Iγ: 0.045 *2* (83Hu11), 0.044 *3* (83Ti02).
4693.3[a] *8*	4692.2?		Iγ: 0.014 *2* (83Hu11).
4725.76 *7*	6072.83	0.11 *3*	Iγ: 0.102 *6* (83Hu11), 0.099 *5* (83Ti02), 0.12 *3* (87Zh12).
4731.19[§a] *9*	6072.83		Iγ: 0.323 *9* (83Ti02).
4775.24 *6*	5339.06	0.16 *1*	Iγ: 0.160 *8* (83Hu11), 0.158 *5* (83Ti02), 0.20 *4* (87Zh12).
4866.27[a] *20*	5339.06		Iγ: 0.016 *1* (83Hu11).
4872.9[a] *7*	6222.4?		Iγ: 0.006 *1* (83Hu11).
4891.35[§a] *8*	4891.35?		Iγ: 0.292 *8* (83Ti02).
4904.9 *4*	6247.62	0.072 *1*	Iγ: 0.072 *1* (83Hu11), 0.139 *7* (83Ti02).
4909.7 *12*	6247.62	0.05 *1*	Iγ: 0.050 *7* (83Hu11), 0.112 *6* (83Ti02).
4914.8 *8*	5478.96	0.056 *3*	Iγ: 0.056 *3* (83Ti02), 0.057 *6* (83Hu11).
4981.79[a] *13*	(6959.44)		Iγ: 0.058 *3* (83Hu11).
5006.33 *8*	5478.96	0.044 *2*	Iγ: 0.044 *2* (83Hu11), 0.043 *3* (83Ti02).
5073.50 *7*	(6959.44)	0.44 *1*	Iγ: 0.395 *20* (83Hu11), 0.431 *11* (83Ti02), 0.44 *6* (87Zh12).
5113.04 *7*	(6959.44)	0.52 *1*	Iγ: 0.473 *24* (83Hu11), 0.512 *12* (83Ti02), 0.55 *7* (87Zh12).
5191.99[a] *19*	5192.44		Iγ: 0.008 *1* (83Hu11).
5245.51[a] *21*	5809.66?		Iγ: 0.009 *1* (83Hu11).
5246.8[§a] *3*	5250		Iγ: 0.024 *3* (83Ti02).
5336.62[a] *17*	5809.66?		Iγ: 0.014 *1* (83Hu11).
5396.6[a] *8*	5397.19?		Iγ: 0.002 *1* (83Hu11).
5445.64[a] *12*	5918.46?		Iγ: 0.146 *7* (83Hu11).
5493.5[§a] *7*	5965.6?		Iγ: 0.012 *3* (83Ti02).
5507.8[§a] *8*	6072.83		Iγ: 0.002 *1* (83Hu11).
5599.97 *24*	6072.83	0.18 *1*	Iγ: 0.087 *4* (83Hu11), 0.183 *9* (83Ti02).
5612.69[§] *10*	(6959.44)	0.52 *8*	Iγ: 0.50 *20* (83Hu11), 0.49 *9* (83Ti02), 0.35 *6* (87Zh12).
5614.31[§] *16*	(6959.44)	0.7 *3*	Iγ: 1.0 *5* (83Hu11), 0.49 *4* (83Ti02), 0.53 *9* (87Zh12).

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$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

γ(^{24}Na) (continued)

Eγ[†]	E(level)	Iγ[‡#&]	Comments
5617.82[§] *6*	(6959.44)	3.9 *7*	Iγ: 3.0 *10* (83Hu11), 4.55 *10* (83Ti02), 3.81 *28* (87Zh12).
5661.2[a] *12*	6222.4?		Iγ: 0.006 *1* (83Hu11).
5683.1[a] *3*	6247.62		Iγ: 0.013 *2* (83Hu11).
5774.87 *12*	6247.62	0.23 *2*	Iγ: 0.224 *11* (83Hu11), 0.253 *7*(83Ti02).
6246.5[a] *12*	6247.62		Iγ: 0.003 *1* (83Hu11).
6395.63 *7*	(6959.44)	19.4 *12*	Iγ: 17.2 *9* (83Hu11), 19.9 *4* (83Ti02), 19.9 *13* (87Zh12).
6486.51 *8*	(6959.44)	0.41 *3*	Iγ: 0.354 *18* (83Hu11), 0.428 *11* (83Ti02), 0.44 *8* (87Zh12).
6958.6[a] *4*	(6959.44)		Iγ: 0.003 *1* (83Hu11).

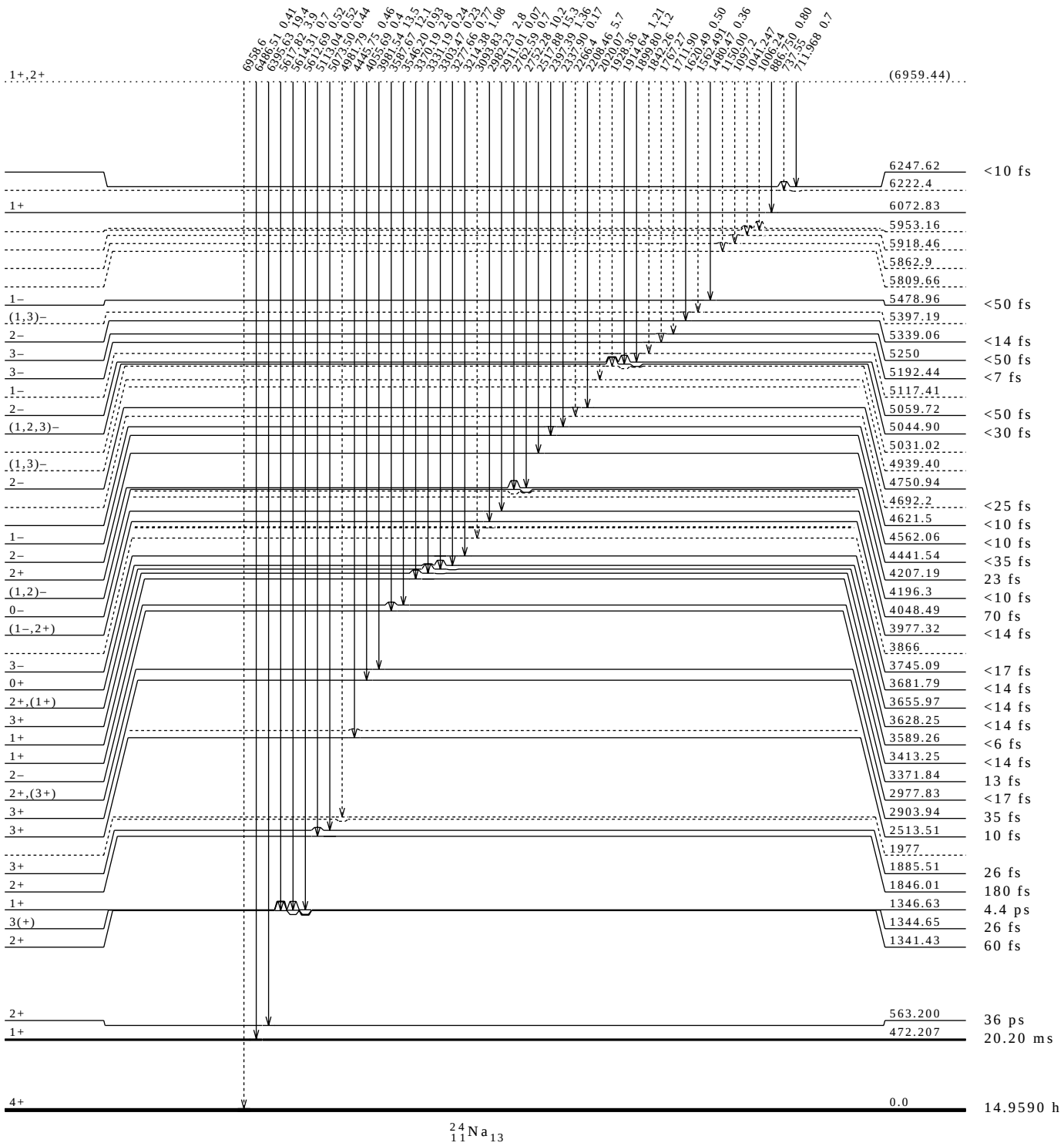
† From 83Hu11, except as noted.
‡ From average of 83Hu11, 83Ti02 and 87Zh12, except as noted.
§ From 83Ti02.
# Absolute intensity per 100 neutron captures.
@ From 96FiZY.
& For intensity per 100 neutron captures, multiply by 1.
a Placement of transition in the level scheme is uncertain.

$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



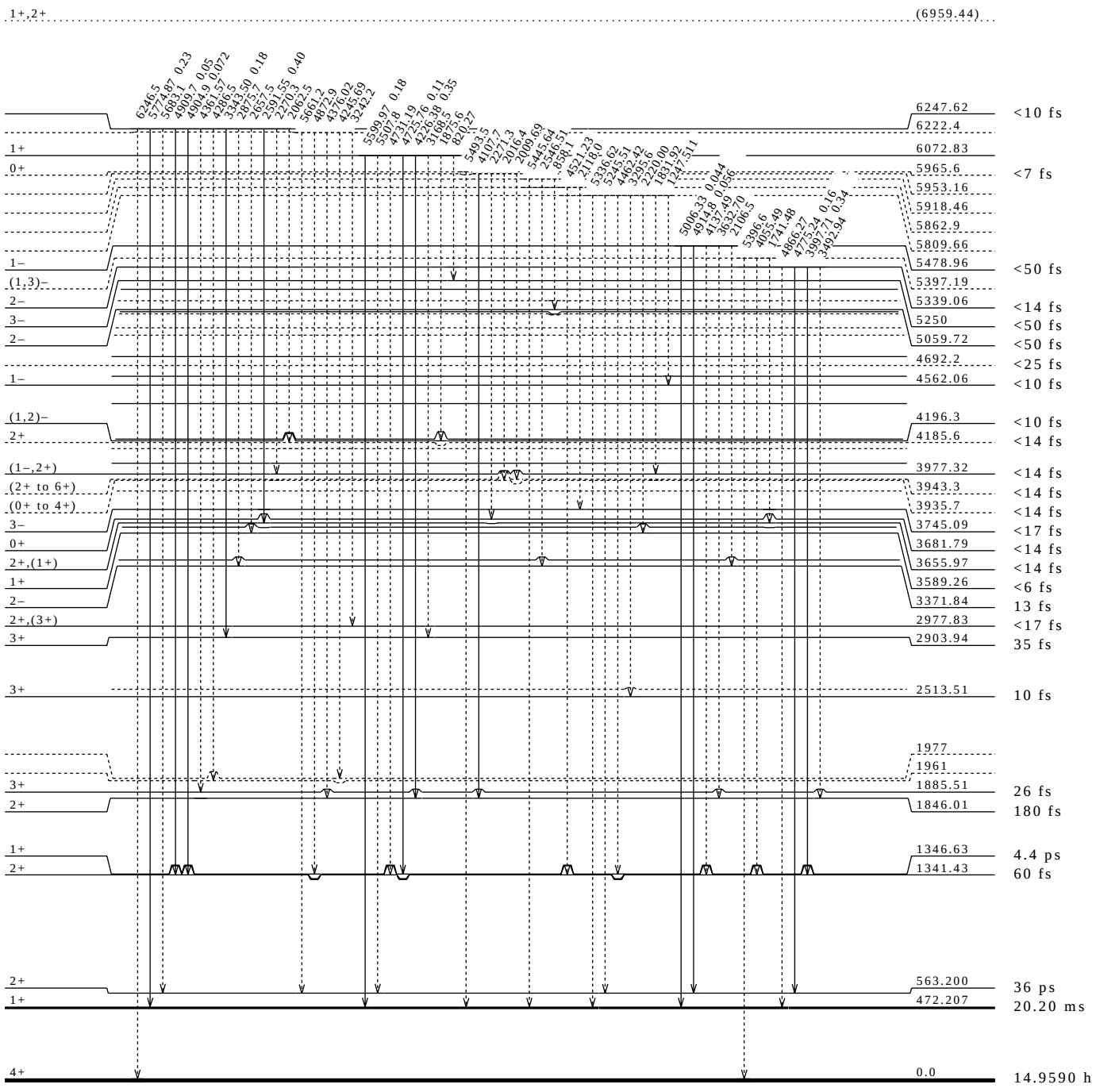
$^{24}_{11}Na_{13}$

$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays

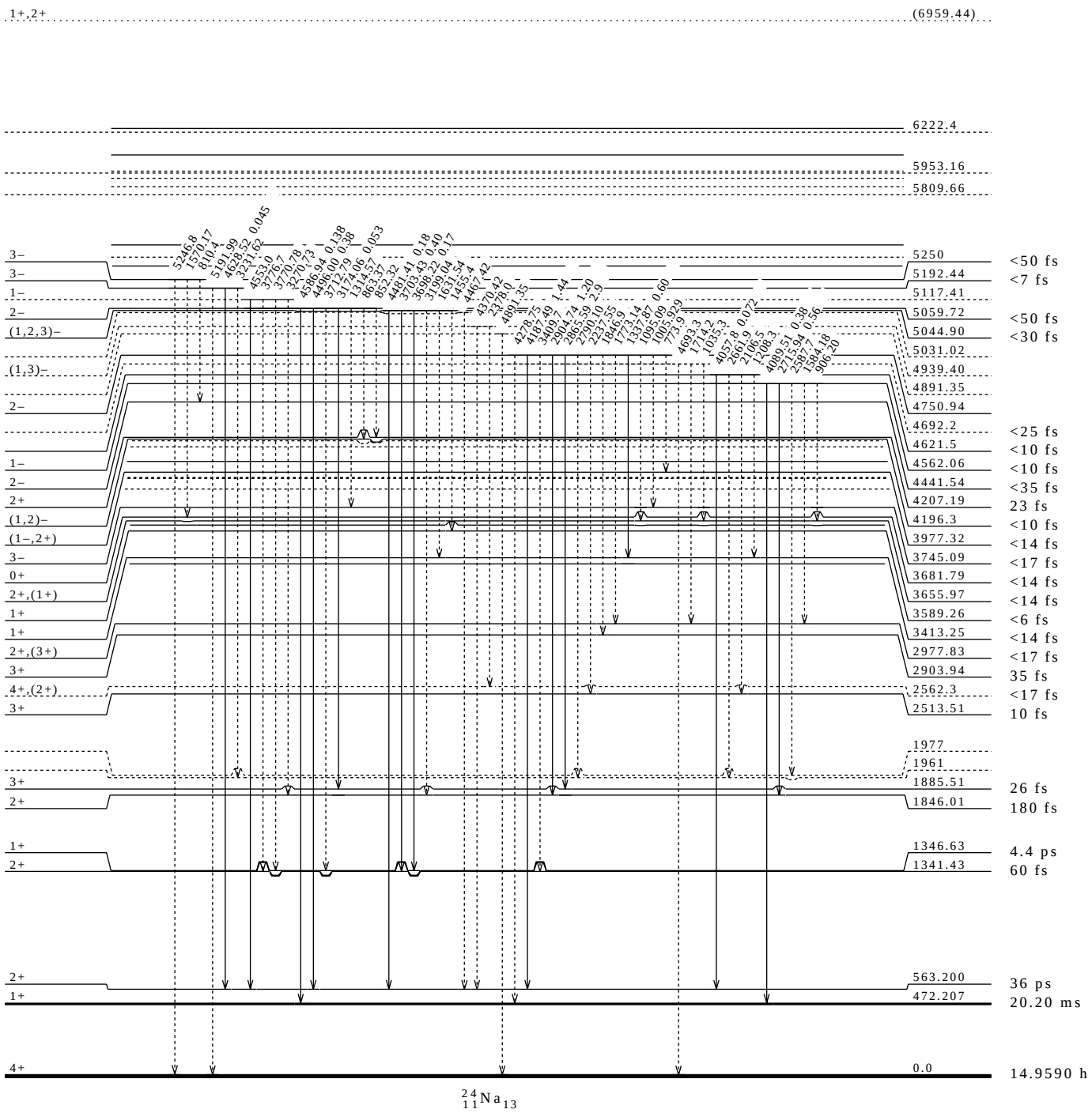


$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



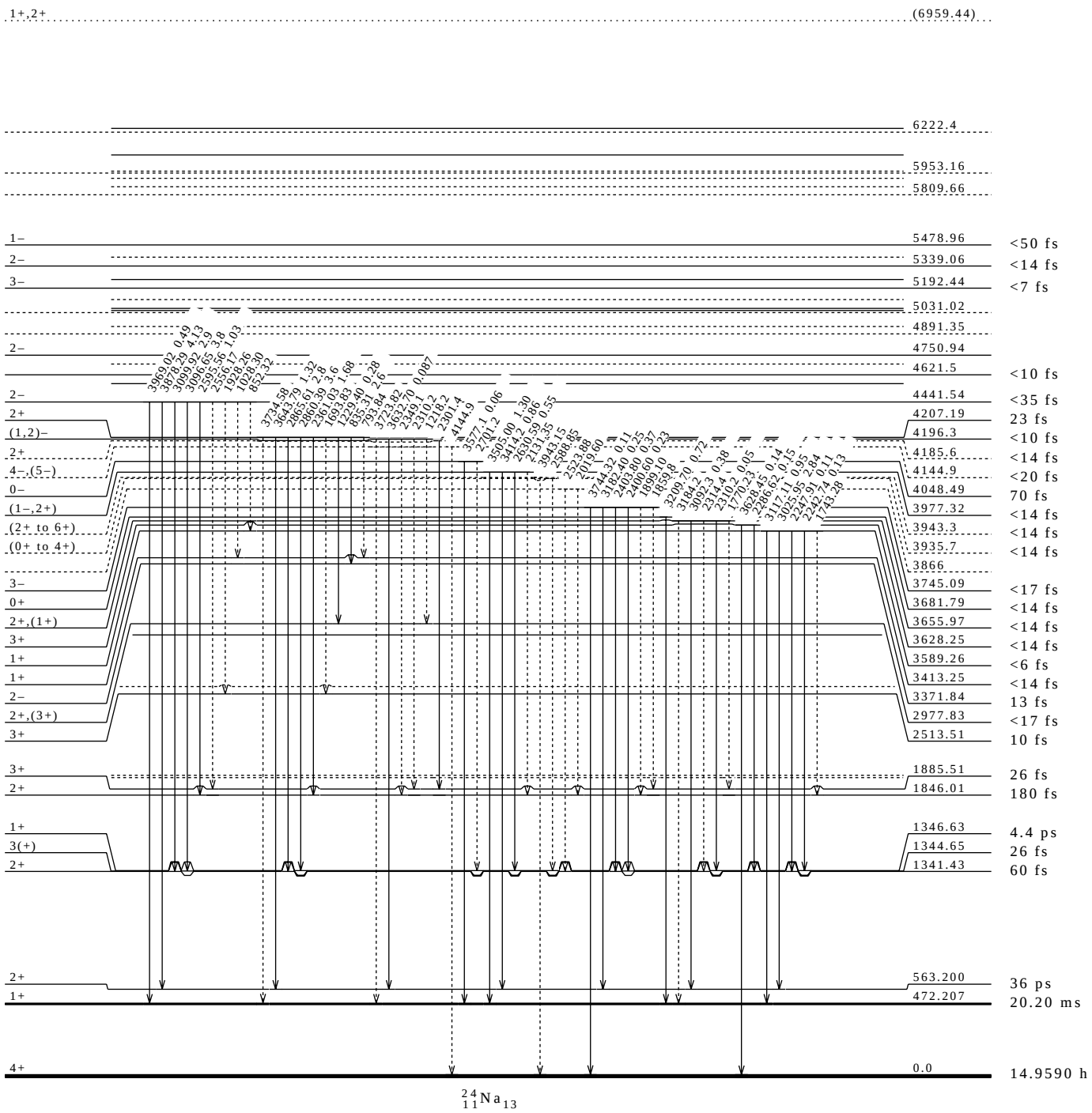
$^{24}_{11}Na_{13}$

$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



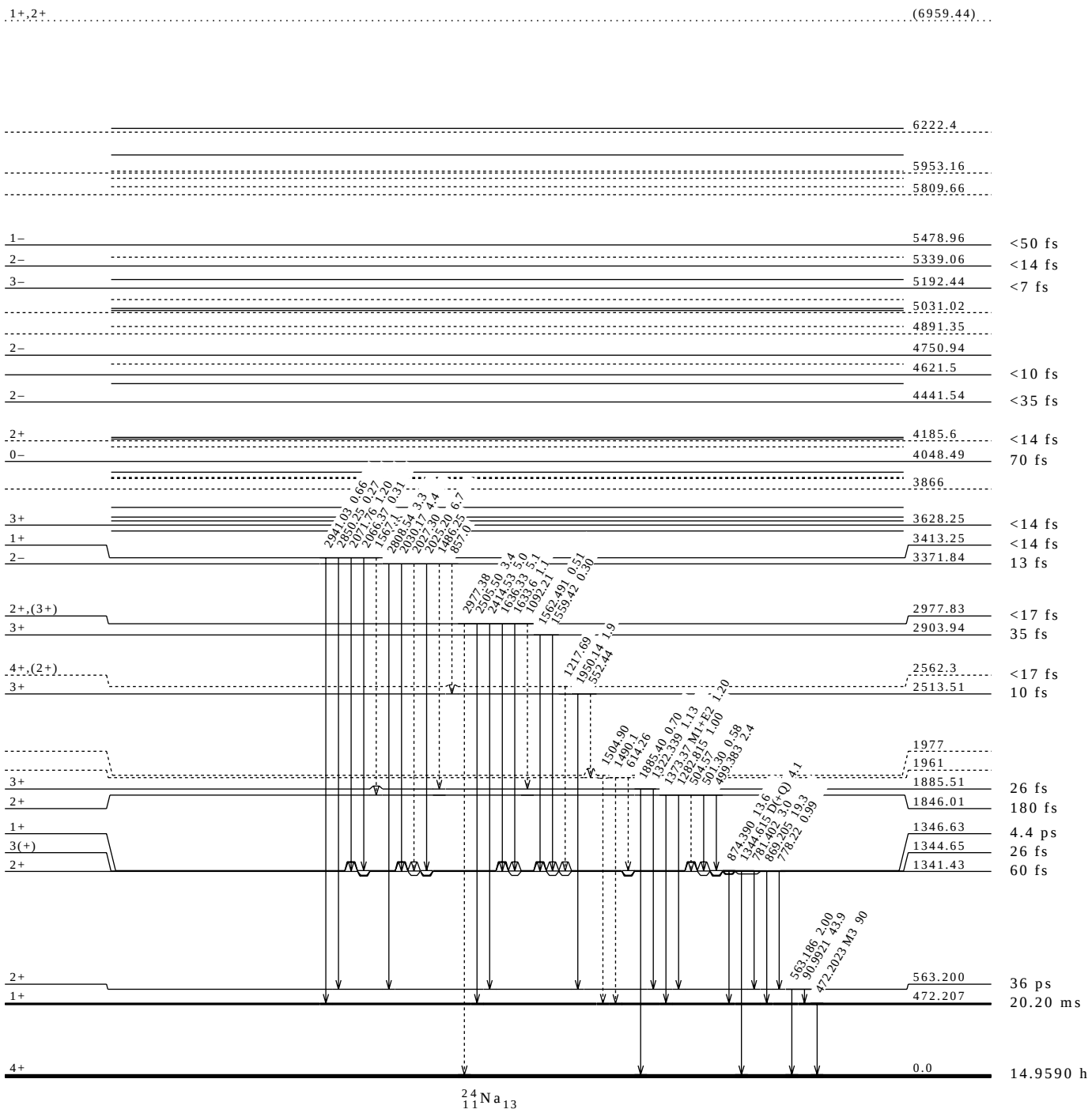
$^{24}_{11}Na_{13}$

$^{24}_{11}Na_{13}$

^{23}Na(n,γ) E=thermal 83Hu11,83Ti02,87Zh12 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays



$^{25}_{12}Mg_{13}$

^{24}Mg(n,γ) E=thermal 92Wa06,91MiZQ

Others: 80Is02, 82Hu02, 90Ko43.

Target Jπ=0+.

92Wa06: measured Eγ, Iγ with a Ge(Li)–NaI(Tl) in Compton–suppressed mode and pair spectrometer mode; deduced neutron separation energy S(n)=7330.65 keV *5*.

91MiZQ: measured Eγ, Iγ with HpGe and pair spectrometers. Precise γ– ray energies deduced. Deduced neutron separation energy S(n)=7330.61 keV *14*.

Other measured S(n)=7330.83 keV *14* (82Hu02), 7330.5 keV *5* (80Is02).

Evaluated S(n)=7330.67 keV *4* (95Au04).

Measured thermal–neutron capture cross section σ(n,γ)=54.1 mb *13* (92Wa06).

^{25}Mg Levels

E(level)‡	Jπ†	$T_{1/2}$†	Comments
0.0	5/2+	stable	
585.081 *22*	1/2+	3.38 ns *5*	
974.857 *23*	3/2+	11.3 ps *3*	
1964.68 *14*	5/2+	0.7 ps *3*	
2563.45 *5*	1/2+	10 ps *3*	
2801.63 *14*	3/2+	28 fs *7*	
3413.45 *3*	3/2–	11 fs *4*	
4276.51 *4*	1/2–	<7 fs	
4358.1 *8*	3/2+	<7 fs	
5116.66 *24*	1/2–	<7 fs	
(7330.67 *4*)	1/2+		E(level): from evaluated s(n) (95Au04). Jπ: from s–wave neutron capture.

† From 96FiZY, except as noted.

‡ From Eγ's using least–squares fit to data, except as noted.

γ(^{25}Mg)

All data are from 92Wa06, except as noted.

Eγ	E(level)	Iγ†&	Mult.‡	δ‡	Comments
389.808§ *29*	974.857	13.9 *7*	M1+E2	+0.13 *3*	Eγ: 389.69 *5* (92Wa06). Iγ: 18.9 *48* (91MiZQ). σ(n,γ)=7.5 mb *4*.
585.105§ *28*	585.081	73.8 *22*	E2(+M3)	≈0.0	Eγ: 585.06 *3* (92Wa06). Iγ: 86 *22* (91MiZQ). σ(n,γ)=39.8 mb *12*.
611.8[a]	3413.45	<0.06			σ(n,γ)<0.03 mb.
836.95 *10*	2801.63	0.39 *6*	M1(+E2)	–0.03 *3*	σ(n,γ)=0.21 mb *3*.
849.9 *3*	3413.45	0.13 *4*			σ(n,γ)=0.07 mb *2*.
863.09 *5*	4276.51	0.96 *9*			σ(n,γ)=0.52 mb *5*.
974.822§ *32*	974.857	15.4 *7*	M1+E2	+0.32 *2*	Eγ: 974.84 *5* (92Wa06). Iγ: 17.9 *45* (91MiZQ). σ(n,γ)=8.3 mb *4*.
989.7 *4*	1964.68	0.09	M1+E2	–0.25 *2*	σ(n,γ)=0.05 mb *1*.
1379.7 *3*	1964.68	0.19 *4*	E2(+M3)	≈0.0	σ(n,γ)=0.10 mb *2*.
1448.7[a]	3413.45	<0.06			σ(n,γ)<0.03 mb.
1474.8[a]	4276.51	<0.06			σ(n,γ)<0.03 mb.
1588.65 *9*	2563.45	0.68 *7*			σ(n,γ)=0.37 mb *4*.
1702.6 *7*	5116.66	0.07 *2*			σ(n,γ)=0.04 mb *1*.
1713.05@ *16*	4276.51	3.3 *6*	E1		Eγ: 1713.10 *9* (91MiZQ). Iγ: 3.0 *7* (91MiZQ). σ(n,γ)=1.8 mb *3*.
1964.7# *4*	1964.68	0.11 *4*	M1+E2	–0.60 *10*	σ(n,γ)=0.06 mb *2*.
1978.25 *5*	2563.45	2.63 *20*	M1		Eγ: 1978.30 *6* (91MiZQ). Iγ: 3.3 *8* (91MiZQ). σ(n,γ)=1.42 mb *11*.
2213.8 *5*	(7330.67)	0.74 *9*			σ(n,γ)=0.40 mb *5*.
2216.5 *6*	2801.63	0.46 *7*			σ(n,γ)=0.25 mb *4*.
2438.48 *4*	3413.45	11.7 *7*	E1(+M2)	≈0.0	Eγ: 2438.51 *5* (91MiZQ). Iγ: 13.8 *21* (91MiZQ). σ(n,γ)=6.3 mb *4*.

Continued on next page (footnotes at end of table)

$^{25}_{12}Mg_{13}$

^{24}Mg(n,γ) E=thermal 92Wa06,91MiZQ (continued)

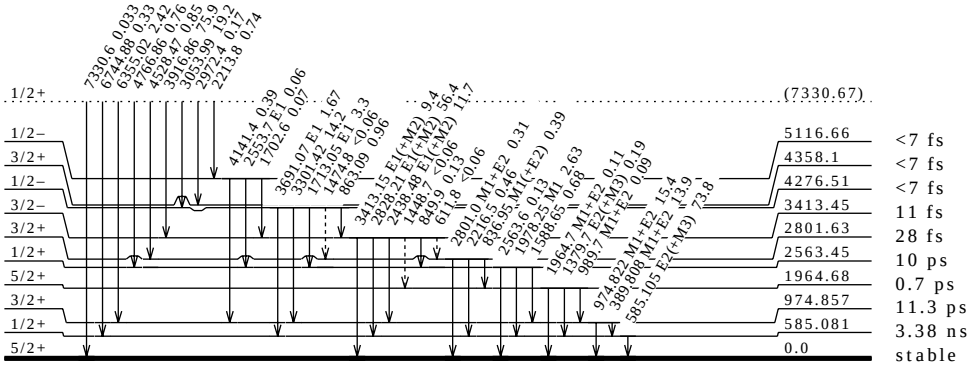
γ(^{25}Mg) (continued)

Eγ	E(level)	Iγ†&	Mult.‡	δ‡	Comments
2553.7 *8*	5116.66	0.06 *2*	E1		σ(n,γ)=0.03 mb *1*.
2563.6 *5*	2563.45	0.13 *4*			σ(n,γ)=0.07 mb *2*.
2801.0 *3*	2801.63	0.31 *4*	M1+E2	−0.64 *8*	σ(n,γ)=0.17 mb *2*.
2828.21 *4*	3413.45	56.4 *19*	E1(+M2)	≈0.0	Eγ: 2828.17 *5* (91MiZQ). Iγ: 56 *8* (91MiZQ). σ(n,γ)=30.5 mb *10*.
2972.4 *8*	(7330.67)	0.17 *4*			σ(n,γ)=0.09 mb *2*.
3053.99 *4*	(7330.67)	19.2 *9*			Eγ: 3053.91 *4* (91MiZQ). Iγ: 19.8 *10* (91MiZQ). σ(n,γ)=10.4 mb *5*.
3301.42 *5*	4276.51	14.2 *7*			Eγ: 3301.43 *5* (91MiZQ). Iγ: 15.4 *8* (91MiZQ). σ(n,γ)=7.7 mb *4*.
3413.15 *5*	3413.45	9.4 *6*	E1(+M2)	≈0.0	Eγ: 3413.16 *5* (91MiZQ). Iγ: 9.8 *5* (91MiZQ). σ(n,γ)=5.1 mb *3*.
[x]3659.6 *7*		0.185 *37*			σ(n,γ)=0.10 mb *2*.
3691.07 *16*	4276.51	1.67 *15*	E1		σ(n,γ)=0.90 mb *8*.
3916.86 *4*	(7330.67)	75.9 *24*			Eγ: 3916.84 *5* (91MiZQ). Iγ: 74.3 *37* (91MiZQ). σ(n,γ)=41.0 mb *13*.
4141.4 *3*	5116.66	0.39 *6*			σ(n,γ)=0.21 mb *3*.
4528.47 *20*	(7330.67)	0.85 *7*			σ(n,γ)=0.46 mb *4*.
4766.86 *23*	(7330.67)	0.76 *7*			σ(n,γ)=0.41 mb *4*.
6355.02 *10*	(7330.67)	2.42 *17*			Eγ: 6354.79 *10* (91MiZQ). Iγ: 2.4 *1* (91MiZQ). σ(n,γ)=1.31 mb *9*.
6744.88 *28*	(7330.67)	0.33 *7*			Eγ: 6744.04 *43* (91MiZQ). Iγ: 0.40 *5* (91MiZQ). σ(n,γ)=0.18 mb *4*.
7330.6 *9*	(7330.67)	0.033 *7*			σ(n,γ)=0.018 mb *4*.

† Absolute intensities per 100 neutron captures. For γ–ray cross section in mb, multiply by 0.5405 per 100 neutron captures.
‡ From 96FiZY.
§ From 91MiZQ.
# May be interferenced from Gd(n,γ).
@ May be interferenced from single–escape peak of 2223–keV γ–ray in ^{2}H.
& For intensity per 100 neutron captures, multiply by 1.
a Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

Level Scheme

Intensities: I(γ+ce) per 100 parent decays



$^{25}_{12}Mg_{13}$

$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06

Other: 80Is02, 82Hu02.

Target Jπ=5/2+.

92Wa06: measured Eγ, Iγ with a Ge(Li)–NaI(Tl) in Compton–suppressed mode and pair spectrometer mode; deduced neutron separation energy S(n)=11093.18 keV *5*.

Other measured S(n)=11093.10 keV *9* (90Pr02), 11091.91 keV *44* (82Hu02), 11092.9 keV *5* (80Is02).

Evaluated S(n)=11093.07 keV *4* (95Au04).

Measured thermal–neutron capture cross section σ(n,γ)=200 mb *3* (92Wa06).

^{26}Mg Levels

E(level)‡	Jπ†	$T_{1/2}$†	Comments
0.0	0+	stable	
1808.72 *4*	2+	476 fs *12*	
2938.30 *4*	2+	141 fs *8*	
3588.54 *9*	0+	6.44 ps *14*	
3941.52 *4*	3+	0.85 ps *12*	
4318.84 *6*	4+	272 fs *16*	
4332.54 *5*	2+	20 fs *3*	
4350.05 *4*	3+	105 fs *20*	
4835.11 *5*	2+	28 fs *6*	
4901.27 *9*	4+	29 fs *6*	
4972.26 *12*	0+	440 fs *60*	
5291.71 *5*	2+	<10 fs	
5476.07 *7*	4+	21 fs *6*	
5691.09 *17*	1	<8 fs	
5715.56 *10*	4+	70 fs *35*	
6125.45 *4*	3+	14 fs *6*	
6634.28 *15*	(0+ to 4+)	<7 fs	
6745.73 *16*	2+	16 fs *8*	
6876.40 *4*	3–	85 fs *35*	
7061.92 *11*	1–	<7 fs	
7099.63 *10*	2+	<14 fs	
7261.36 *4*	(2,3)–	<7 fs	
7282.71 *5*	4–	24 fs *8*	
7348.83 *5*	3–		
7371.18 *22*	(1,2)+		
7541.70 *5*	(2,3)–	<7 fs	
7697.3 *6*	(1,2+)		
7725.71 *16*	(2,3,4,5)+		
8052.9 *6*	2+		
8184.93 *10*			
8227.54 *16*	(1,2+)	1.0 fs *2*	
8250.70 *10*	1–		
8458.85 *13*			
8503.71 *9*			
8532.23 *9*			
8705.69 *9*	(2+,3+,4+)		
8863.8 *5*	2+		
8903.46 *6*			
8959.4 *5*			
9044.7 *3*			
9238.7 *5*	1+	340 as *40*	
9325.48 *6*			
9427.71 *7*			
9573.99 *6*			
9617.0 *9*			
9856.49 *6*	2+		
10102.39 *15*			
10126.64 *11*	4+		
10220.1 *3*			
10350.33 *13*			
10362.39 *7*			
10599.92 *7*			
10681.8 *3*			
10718.71 *9*			
10745.94 *13*			

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^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

^{26}Mg Levels (continued)

E(level)‡	Jπ†	Comments
10805.8 *4*		
(11093.07 *4*)	2+,3+	E(level): from evaluated s(n) (95Au04). Jπ: from s–wave neutron capture.

† From 96FiZY, except as noted.
‡ From Eγ's using least–squares fit to data, except as noted.

γ(^{26}Mg)

All data are from 92Wa06, except as noted.

Eγ	E(level)	Iγ†&	Mult.‡	δ‡	Comments
287.5 *4*	(11093.07)	0.035 *10*			σ(n,γ)=0.07 mb *2*.
347.20 *12*	(11093.07)	0.062 *10*			σ(n,γ)=0.124 mb *19*.
374.43 *8*	(11093.07)	0.115 *15*			σ(n,γ)=0.23 mb *3*.
391.0[a]	4332.54	<0.015			σ(n,γ)<0.03 mb.
409.4[#b] *5*	4350.05	0.025[b] *5*			σ(n,γ)=0.05 mb *1*.
	6125.45	0.025[b] *5*			σ(n,γ)=0.05 mb *1*.
411.3 *3*	(11093.07)	0.035 *5*			σ(n,γ)=0.07 mb *1*.
493.23 *6*	(11093.07)	0.370 *45*			σ(n,γ)=0.74 mb *9*.
502.5 *4*	4835.11	0.10 *2*			σ(n,γ)=0.20 mb *4*.
730.74 *6*	(11093.07)	0.795 *30*			σ(n,γ)=1.59 mb *6*.
742.79 *12*	(11093.07)	0.11 *2*			σ(n,γ)=0.22 mb *4*.
744.0[a]	4332.54	<0.025			σ(n,γ)<0.05 mb.
[x]767.86 *22*		0.090 *15*			σ(n,γ)=0.18 mb *3*.
814.3	5715.56	<0.015	M1(+E2)	+0.1 *3*	σ(n,γ)<0.03 mb.
833.68 *9*	6125.45	0.24 *3*			σ(n,γ)=0.48 mb *6*.
873.0 *3*	(11093.07)	0.04 *1*			σ(n,γ)=0.08 mb *2*.
966.47 *10*	(11093.07)	0.195 *20*			σ(n,α)=0.39 mb *4*.
990.76 *16*	(11093.07)	0.150 *15*			σ(n,γ)=0.30 mb *3*.
1003.25 *4*	3941.52	8.2 *3*	M1+E2	−0.05 *4*	σ(n,γ)=16.4 mb *6*.
1129.61 *4*	2938.30	46.0 *15*	M1+E2	−0.12 *2*	σ(n,γ)=92 mb *3*.
1157.23 *6*	5476.07	0.68 *5*	M1+E2	+0.09 *7*	σ(n,γ)=1.36 mb *10*.
1224.0 *3*	6125.45	0.090 *15*			σ(n,γ)=0.18 mb *3*.
1236.64 *5*	(11093.07)	0.580 *25*			σ(n,γ)=1.16 mb *5*.
1290.40 *7*	6125.45	0.355 *30*			σ(n,γ)=0.71 mb *6*.
1350.20 *16*	5291.71	0.080 *15*			σ(n,γ)=0.16 mb *3*.
1358.4 *9*	5691.09	0.0175 *60*			σ(n,γ)=0.035 mb *12*.
1365.54 *20*	5715.56	0.315 *40*	M1+E2	−0.17 *3*	σ(n,γ)=0.63 mb *8*.
1394.28 *7*	4332.54	1.005 *50*			σ(n,γ)=2.01 mb *10*.
1411.72 *4*	4350.05	6.70 *25*	M1+E2	−0.31 *6*	σ(n,γ)=13.4 mb *5*.
[x]1468.9 *3*		0.055 *15*			σ(n,γ)=0.11 mb *3*.
1519.12 *5*	(11093.07)	1.31 *5*			σ(n,γ)=2.62 mb *10*.
1534.49 *15*	5476.07	0.155 *20*	M1+E2	−0.27 *4*	σ(n,γ)=0.31 mb *4*.
1554.8 *4*	8903.46	0.065 *10*			σ(n,γ)=0.13 mb *2*.
1567.06 *11*	7282.71	0.23 *2*			σ(n,γ)=0.46 mb *4*.
1620.8 *3*	8903.46	0.175 *20*			σ(n,γ)=0.35 mb *4*.
1642.09 *25*	8903.46	0.185 *25*			σ(n,γ)=0.37 mb *5*.
1665.39 *6*	(11093.07)	0.610 *35*			σ(n,γ)=1.22 mb *7*.
1767.61 *4*	(11093.07)	1.57 *7*			σ(n,γ)=3.14 mb *14*.
1774.0[@] *9*	5715.56	0.395 *60*	M1+E2	−0.12 *4*	σ(n,γ)=0.79 mb *12*.
1775.31 *5*	6125.45	6.80 *25*			σ(n,γ)=13.6 mb *5*.
1779.74 *8*	3588.54	0.65 *3*	E2		σ(n,γ)=1.30 mb *6*.
1792.87 *12*	6125.45	0.44 *4*			σ(n,γ)=0.88 mb *8*.
1808.68 *4*	1808.72	93 *3*	E2		σ(n,γ)=186 mb *6*.
1854.5 *5*	(11093.07)	0.120 *25*			σ(n,γ)=0.24 mb *5*.
1873.1 *5*	7348.83	0.05 *1*			σ(n,γ)=0.10 mb *2*.
1896.72 *5*	4835.11	4.80 *25*	M1(+E2)	−0.04 *6*	σ(n,γ)=9.6 mb *5*.
2033.88 *12*	4972.26	0.295 *35*	E2		σ(n,γ)=0.59 mb *7*.
2041.44 *16*	6876.40	0.235 *30*			σ(n,γ)=0.47 mb *6*.
2048.2 *3*	(11093.07)	0.105 *15*			σ(n,γ)=0.21 mb *3*.
[x]2064.2 *5*		0.050 *15*			σ(n,γ)=0.10 mb *3*.

Continued on next page (footnotes at end of table)

$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

γ(^{26}Mg) (continued)

Eγ	E(level)	Iγ†&	Mult.‡	δ‡	Comments
2132.71 *4*	3941.52	4.70 *25*	M1(+E2)	+0.01 *2*	σ(n,γ)=9.4 mb *5*.
2133.7§ *9*	(11093.07)	0.160 *25*			σ(n,γ)=0.32 mb *5*.
2183.83 *6*	6125.45	0.935 *45*			σ(n,γ)=1.87 mb *9*.
2189.59 *5*	(11093.07)	3.08 *10*			σ(n,γ)=6.16 mb *20*.
2264.25 *21*	7099.63	0.185 *25*			σ(n,γ)=0.37 mb *5*.
2290.8 *4*	9573.99	0.115 *20*			σ(n,γ)=0.23 mb *4*.
2353.27 *5*	5291.71	2.36 *13*			σ(n,γ)=4.72 mb *25*.
2381.28 *15*	7282.71	0.255 *25*			σ(n,γ)=0.51 mb *5*.
2387.33 *8*	(11093.07)	0.570 *35*			σ(n,γ)=1.14 mb *7*.
x2410.8 *3*		0.070 *15*			σ(n,γ)=0.14 mb *3*.
2426.09 *6*	7261.36	2.670 *85*			σ(n,γ)=5.34 mb *17*.
2510.01 *5*	4318.84	3.00 *15*			σ(n,γ)=6.0 mb *3*.
2513.52 *8*	7348.83	1.47 *12*			σ(n,γ)=2.93 mb *23*.
2523.69 *6*	4332.54	5.20 *25*			σ(n,γ)=10.4 mb *5*.
2541.18 *6*	4350.05	7.20 *45*	M1+E2	−0.10 *4*	σ(n,γ)=14.4 mb *9*.
2543.7 *4*	6876.40	0.305 *40*			σ(n,γ)=0.61 mb *8*.
2557.2 *3*	6876.40	0.220 *25*			σ(n,γ)=0.44 mb *5*.
2560.77 *8*	(11093.07)	0.80 *4*			σ(n,γ)=1.60 mb *8*.
2589.30 *8*	(11093.07)	0.495 *30*			σ(n,γ)=0.99 mb *6*.
2634.17 *13*	(11093.07)	0.41 *3*			σ(n,γ)=0.82 mb *6*.
2697.7 *3*	9573.99	0.20 *2*			σ(n,γ)=0.40 mb *4*.
2752.56 *25*	5691.09	0.12 *2*			σ(n,γ)=0.24 mb *4*.
2776.82 *20*	5715.56	0.255 *30*			σ(n,γ)=0.51 mb *6*.
2842.20 *12*	(11093.07)	1.175 *65*			σ(n,γ)=2.35 mb *13*.
2865.27 *21*	(11093.07)	0.85 *6*			σ(n,γ)=1.70 mb *12*.
2908.02 *11*	(11093.07)	1.400 *75*			σ(n,γ)=2.80 mb *15*.
2911.12 *19*	7261.36	0.860 *75*			σ(n,γ)=1.72 mb *15*.
2928.56 *17*	7261.36	1.005 *75*			σ(n,γ)=2.01 mb *15*.
2932.5 *4*	7282.71	0.455 *50*			σ(n,γ)=0.91 mb *10*.
2934.8 *6*	6876.40	0.210 *45*			σ(n,γ)=0.42 mb *9*.
2938.15 *5*	2938.30	4.95 *25*	E2		σ(n,γ)=9.9 mb *5*.
2942.3[a]	7261.36	<0.10			σ(n,γ)<0.20 mb.
2963.61 *9*	7282.71	1.54 *11*	E1+M2	+0.5 *4*	σ(n,γ)=3.08 mb *22*.
3016.18 *23*	7348.83	0.42 *4*			σ(n,γ)=0.84 mb *8*.
3021.3 *9*	7371.18	0.050 *15*			σ(n,γ)=0.10 mb *3*.
3026.3 *6*	4835.11	0.23 *3*			σ(n,γ)=0.46 mb *6*.
3029.6 *8*	7348.83	0.110 *15*			σ(n,γ)=0.22 mb *3*.
3039.5 *8*	(11093.07)	0.135 *20*			σ(n,γ)=0.27 mb *4*.
3092.31 *11*	4901.27	1.36 *10*	E2(+M3)	−0.02 *14*	σ(n,γ)=2.72 mb *20*.
3158.4 *6*	7099.63	0.085 *20*			σ(n,γ)=0.17 mb *4*.
3187.14 *28*	6125.45	0.39 *4*			σ(n,γ)=0.78 min *8*.
3191.2 *6*	7541.70	0.180 *25*			σ(n,γ)=0.36 mb *5*.
3208.98 *8*	7541.70	2.07 *10*			σ(n,γ)=4.13 mb *19*.
3261.8 *4*	10362.39	0.19 *2*			σ(n,γ)=0.38 mb *4*.
3319.66 *5*	7261.36	5.05 *20*			σ(n,γ)=10.1 mb *4*.
3341.01 *7*	7282.71	2.5 *2*	E1(+M2)	+0.03 *7*	σ(n,γ)=5.0 mb *4*.
3367.45 *22*	(11093.07)	0.435 *30*			σ(n,γ)=0.87 mb *6*.
3395.3 *7*	(11093.07)	0.120 *15*			σ(n,γ)=0.24 mb *3*.
3406.87 *22*	7725.71	0.510 *45*			σ(n,γ)=1.02 mb *9*.
3428.7 *4*	7371.18	0.270 *35*			σ(n,γ)=0.54 mb *7*.
3448.8 *7*	9573.99	0.17 *2*			σ(n,γ)=0.34 mb *4*.
3472.9 *3*	7061.92	0.460 *35*	E1		σ(n,γ)=0.92 mb *7*.
3482.4 *6*	5291.71	0.155 *20*			σ(n,γ)=0.31 mb *4*.
3500.6 *9*	10599.92	0.03 *1*			σ(n,γ)=0.06 mb *2*.
3551.19 *4*	(11093.07)	5.6 *2*			σ(n,γ)=11.2 mb *4*.
3599.86 *14*	7541.70	0.79 *5*			σ(n,γ)=1.58 mb *10*.
3611.5 *4*	8903.46	0.245 *25*			σ(n,γ)=0.49 mb *5*.
3667.1 *9*	5476.07	0.09 *2*			σ(n,γ)=0.18 mb *4*.
3672.6[a]	7261.36	<0.10			σ(n,γ)<0.20 mb.
3695.63 *25*	6634.28	0.465 *40*			σ(n,γ)=0.93 mb *8*.
3721.4 *3*	(11093.07)	0.385 *30*			σ(n,γ)=0.77 mb *6*.
3744.01 *4*	(11093.07)	7.15 *25*			σ(n,γ)=14.3 mb *5*.
3760.0[a]	7348.83	<0.10			σ(n,γ)<0.20 mb.

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$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

γ(^{26}Mg) (continued)

Eγ	E(level)	Iγ†&	Mult.‡	Comments
3783.8 *9*	7725.71	0.10 *2*		σ(n,γ)=0.20 mb *4*.
3807.8 *9*	6745.73	0.165 *30*		σ(n,γ)=0.33 mb *6*.
3810.13 *5*	(11093.07)	5.05 *20*		σ(n,γ)=10.1 mb *4*.
3831.48 *4*	(11093.07)	21.8 *7*		σ(n,γ)=43.6 mb *14*.
[x]3847.0 *6*		0.22 *5*		σ(n,γ)=0.44 mb *10*.
3882.0 *3*	5691.09	0.300 *35*		σ(n,γ)=0.60 mb *7*.
3937.80 *11*	6876.40	1.32 *6*		σ(n,γ)=2.64 mb *12*.
3993.24 *13*	(11093.07)	0.880 *45*		σ(n,γ)=1.76 mb *9*.
4001.8 *3*	8903.46	0.25 *2*		σ(n,γ)=0.50 mb *4*.
4030.88 *12*	(11093.07)	0.910 *45*		σ(n,γ)=1.82 mb *9*.
4122.9 *6*	7061.92	0.130 *25*		σ(n,γ)=0.26 mb *5*.
4139.7 *5*	8458.85	0.14 *2*		σ(n,γ)=0.28 mb *4*.
4160.96 *20*	7099.63	0.455 *40*		σ(n,γ)=0.91 mb *8*.
4181.9 *7*	8532.23	0.115 *20*		σ(n,γ)=0.23 mb *4*.
4216.38 *4*	(11093.07)	7.50 *25*		σ(n,γ)=15.0 mb *5*.
4316.39 *24*	6125.45	0.330 *35*		σ(n,γ)=0.66 mb *7*.
4322.68 *8*	7261.36	1.615 *85*		σ(n,γ)=3.23 mb *17*.
4332.2 *3*	4332.54	0.395 *40*	E2	σ(n,γ)=0.79 mb *8*.
4346.98 *18*	(11093.07)	0.335 *25*		σ(n,γ)=0.67 mb *5*.
4355.3 *6*	8705.69	0.13 *2*		σ(n,γ)=0.26 mb *4*.
4410.15 *5*	7348.83	3.5 *2*		σ(n,γ)=7.0 mb *4*.
4424.2 *8*	9325.48	0.110 *15*		σ(n,γ)=0.22 mb *3*.
4458.43 *17*	(11093.07)	0.47 *3*		σ(n,γ)=0.94 mb *6*.
4489.4 *9*	9325.48	0.110 *15*		σ(n,γ)=0.22 mb *3*.
4544.5[a]	8863.8	<0.015		σ(n,γ)<0.03 mb.
4553.02 *13*	8903.46	0.835 *65*		σ(n,γ)=1.67 mb *13*.
4584.2[a]	8903.46	<0.03		σ(n,γ)<0.06 mb.
4602.93 *7*	7541.70	1.87 *8*		σ(n,γ)=3.74 mb *16*.
4834.61 *18*	4835.11	0.630 *55*	E2	σ(n,γ)=1.26 mb *11*.
4886.3 *5*	10362.39	0.145 *20*		σ(n,γ)=0.29 mb *4*.
[x]4891.9 *4*		0.10 *2*		σ(n,γ)=0.20 mb *4*.
4936.3 *3*	6745.73	0.33 *3*		σ(n,γ)=0.66 mb *6*.
4961.42 *22*	8903.46	0.785 *60*		σ(n,γ)=1.57 mb *12*.
4967.19 *4*	(11093.07)	8.5 *3*		σ(n,γ)=17.0 mb *6*.
4975.3 *9*	9325.48	0.13 *2*		σ(n,γ)=0.26 mb *4*.
4992.4 *8*	9325.48	0.195 *25*		σ(n,γ)=0.39 mb *5*.
5020.7 *8*	9856.49	0.100 *15*		σ(n,γ)=0.20 mb *3*.
5067.13 *4*	6876.40	5.05 *20*		σ(n,γ)=10.1 mb *4*.
5077.4 *9*	9427.71	0.065 *20*		σ(n,γ)=0.13 mb *4*.
5223.37 *12*	9573.99	0.82 *7*		σ(n,γ)=1.64 mb *14*.
5245.9 *3*	8184.93	0.280 *35*		σ(n,γ)=0.56 mb *7*.
5252.9 *3*	7061.92	0.275 *30*		σ(n,γ)=0.55 mb *6*.
5290.3 *5*	7099.63	0.145 *20*		σ(n,γ)=0.29 mb *4*.
5291.1 *5*	5291.71	0.0640 *15*	E2	σ(n,γ)=0.128 mb *3*.
5311.66 *16*	8250.70	0.885 *55*		σ(n,γ)=1.77 mb *11*.
5376.1 *8*	(11093.07)	0.065 *15*		σ(n,γ)=0.13 mb *3*.
5383.8 *7*	9325.48	0.065 *15*		σ(n,γ)=0.13 mb *3*.
5401.3 *4*	(11093.07)	0.225 *20*		σ(n,γ)=0.45 mb *4*.
5452.03 *4*	7261.36	10.65 *35*		σ(n,γ)=21.3 mb *7*.
5523.6 *7*	9856.49	0.16 *2*		σ(n,γ)=0.32 mb *4*.
5539.53 *15*	7348.83	1.11 *7*		σ(n,γ)=2.22 mb *14*.
5562.9 *9*	7371.18	0.060 *15*		σ(n,γ)=0.12 mb *3*.
5593.2 *4*	8532.23	0.175 *20*		σ(n,γ)=0.35 mb *4*.
5616.8 *3*	(11093.07)	0.270 *25*		σ(n,γ)=0.54 mb *5*.
5632.3 *6*	9573.99	0.120 *15*		σ(n,γ)=0.24 mb *3*.
5691.1 *9*	5691.09	0.025 *10*	D	σ(n,γ)=0.05 mb *2*.
5732.37 *15*	7541.70	0.860 *65*		σ(n,γ)=1.72 mb *13*.
5766.6 *3*	8705.69	0.325 *30*		σ(n,γ)=0.65 mb *6*.
5800.69 *9*	(11093.07)	1.575 *60*		σ(n,γ)=3.15 mb *12*.
5915.8 *9*	9856.49	0.050 *15*		σ(n,γ)=0.10 mb *3*.
5924.8 *9*	8863.8	0.055 *10*		σ(n,γ)=0.11 mb *2*.
5964.31 *20*	8903.46	0.295 *25*		σ(n,γ)=0.59 mb *5*.
[x]5975.3 *7*		0.04 *1*		σ(n,γ)=0.08 mb *2*.

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^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

γ(^{26}Mg) (continued)

Eγ	E(level)	Iγ†&	Mult.‡	Comments
6011.2 *5*	10362.39	0.15 *2*		σ(n,γ)=0.30 mb *4*.
6104.3 *9*	9044.7	0.065 *15*		σ(n,γ)=0.13 mb *3*.
6120.1 *4*	(11093.07)	0.25 *2*		σ(n,γ)=0.50 mb *4*.
6191.11 *25*	(11093.07)	0.265 *20*		σ(n,γ)=0.53 mb *4*.
6242.9 *7*	8052.9	0.125 *15*		σ(n,γ)=0.25 mb *3*.
6249.7 *9*	10599.92	0.045 *10*		σ(n,γ)=0.09 mb *2*.
6257.1 *3*	(11093.07)	0.340 *25*		σ(n,γ)=0.68 mb *5*.
6267.0 *6*	10599.92	0.14 *2*		σ(n,γ)=0.28 mb *4*.
6375.38 *16*	8184.93	1.02 *8*		σ(n,γ)=2.04 mb *16*.
6386.34 *23*	9325.48	0.41 *3*		σ(n,γ)=0.82 mb *6*.
6417.9 *3*	8227.54	0.335 *40*		σ(n,γ)=0.67 mb *8*.
6441.1 *8*	8250.70	0.0345 *70*		σ(n,γ)=0.069 mb *14*.
6488.6 *4*	9427.71	0.285 *25*		σ(n,γ)=0.57 mb *5*.
6649.1 *7*	8458.85	0.075 *15*		σ(n,γ)=0.15 mb *3*.
6657.3 *5*	10599.92	0.12 *2*		σ(n,γ)=0.24 mb *4*.
6694.0 *7*	8503.71	0.110 *15*		σ(n,γ)=0.22 mb *3*.
6722.1 *7*	8532.23	0.080 *15*		σ(n,γ)=0.16 mb *3*.
6742.21 *7*	(11093.07)	2.105 *80*		σ(n,γ)=4.21 mb *16*.
6759.73 *11*	(11093.07)	1.145 *75*		σ(n,γ)=2.29 mb *15*.
6773.1 *3*	(11093.07)	0.345 *25*		σ(n,γ)=0.69 mb *5*.
7054.0 *6*	8863.8	0.08 *1*		σ(n,γ)=0.16 mb *2*.
7060.6 *7*	7061.92	0.0485 *95*		σ(n,γ)=0.097 mb *19*.
7098.9 *5*	7099.63	0.050 *15*		σ(n,γ)=0.10 mb *3*.
7150.61 *7*	(11093.07)	1.145 *70*		σ(n,γ)=2.29 mb *14*.
7162.4 *9*	10102.39	0.04 *1*		σ(n,γ)=0.08 mb *2*.
7187.4 *8*	10126.64	0.06 *1*		σ(n,γ)=0.12 mb *2*.
7260.3[a]	7261.36	<0.015		σ(n,γ)<0.03 mb.
7347.7[a]	7348.83	<0.015	E3	σ(n,γ)<0.03 mb.
7369.8 *7*	7371.18	0.090 *15*		σ(n,γ)=0.18 mb *3*.
7617.8 *7*	9427.71	0.095 *15*		σ(n,γ)=0.19 mb *3*.
7660.4 *9*	10599.92	0.055 *10*		σ(n,γ)=0.11 mb *2*.
7695.6 *8*	7697.3	0.05 *1*		σ(n,γ)=0.10 mb *2*.
7807.0 *9*	9617.0	0.05 *1*		σ(n,γ)=0.10 mb *2*.
8153.54 *5*	(11093.07)	14.9 *5*		σ(n,γ)=29.8 mb *10*.
8225.6 *4*	8227.54	0.215 *20*		σ(n,γ)=0.43 mb *4*.
8316.4 *8*	10126.64	0.115 *15*		σ(n,γ)=0.23 mb *3*.
8409.7 *9*	10220.1	0.055 *10*		σ(n,γ)=0.11 mb *2*.
8502.2 *3*	8503.71	0.325 *25*		σ(n,γ)=0.65 mb *5*.
8539.2 *9*	10350.33	0.05 *1*		σ(n,γ)=0.10 mb *2*.
8552.2 *3*	10362.39	0.305 *30*		σ(n,γ)=0.61 mb *6*.
8957.7 *5*	8959.4	0.160 *15*		σ(n,γ)=0.32 mb *3*.
8996.5 *9*	10805.8	0.020 *5*		σ(n,γ)=0.04 mb *1*.
9237.1 *8*	9238.7	0.07 *1*		σ(n,γ)=0.14 mb *2*.
9282.68 *6*	(11093.07)	2.275 *80*		σ(n,γ)=4.55 mb *16*.
9854.5 *7*	9856.49	0.070 *15*		σ(n,γ)=0.14 mb *3*.
10100.5 *4*	10102.39	0.115 *15*		σ(n,γ)=0.23 mb *3*.
11090.7 *7*	(11093.07)	0.14 *2*		σ(n,γ)=0.28 mb *4*.

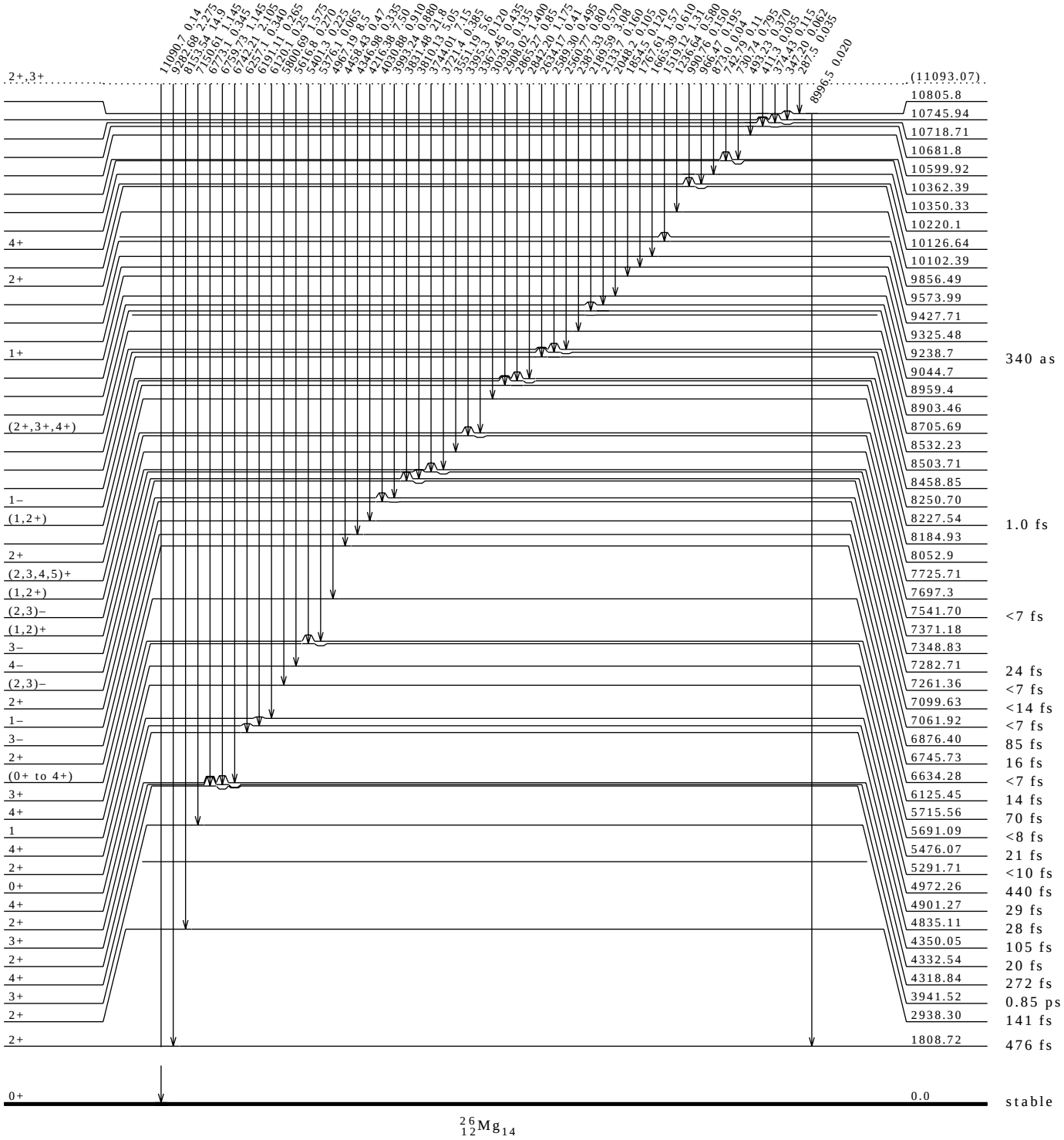
† Absolute intensities per 100 neutron captures. For γ–ray cross section in mb, multiply by 2.0 per 100 neutron captures.
‡ From 96FiZY.
§ Inferred from intensity balance requirements for the 8959.4–keV level.
# γ ray placed twice on the level scheme.
@ Presence deduced from the known level energies and branching ratios.
& For intensity per 100 neutron captures, multiply by 1.
a Placement of transition in the level scheme is uncertain.
b Multiply placed; undivided intensity given.
x γ ray not placed in level scheme.

$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

Level Scheme

Intensities: I(γ+ce) per 100 parent decays
& Multiply placed; undivided intensity given

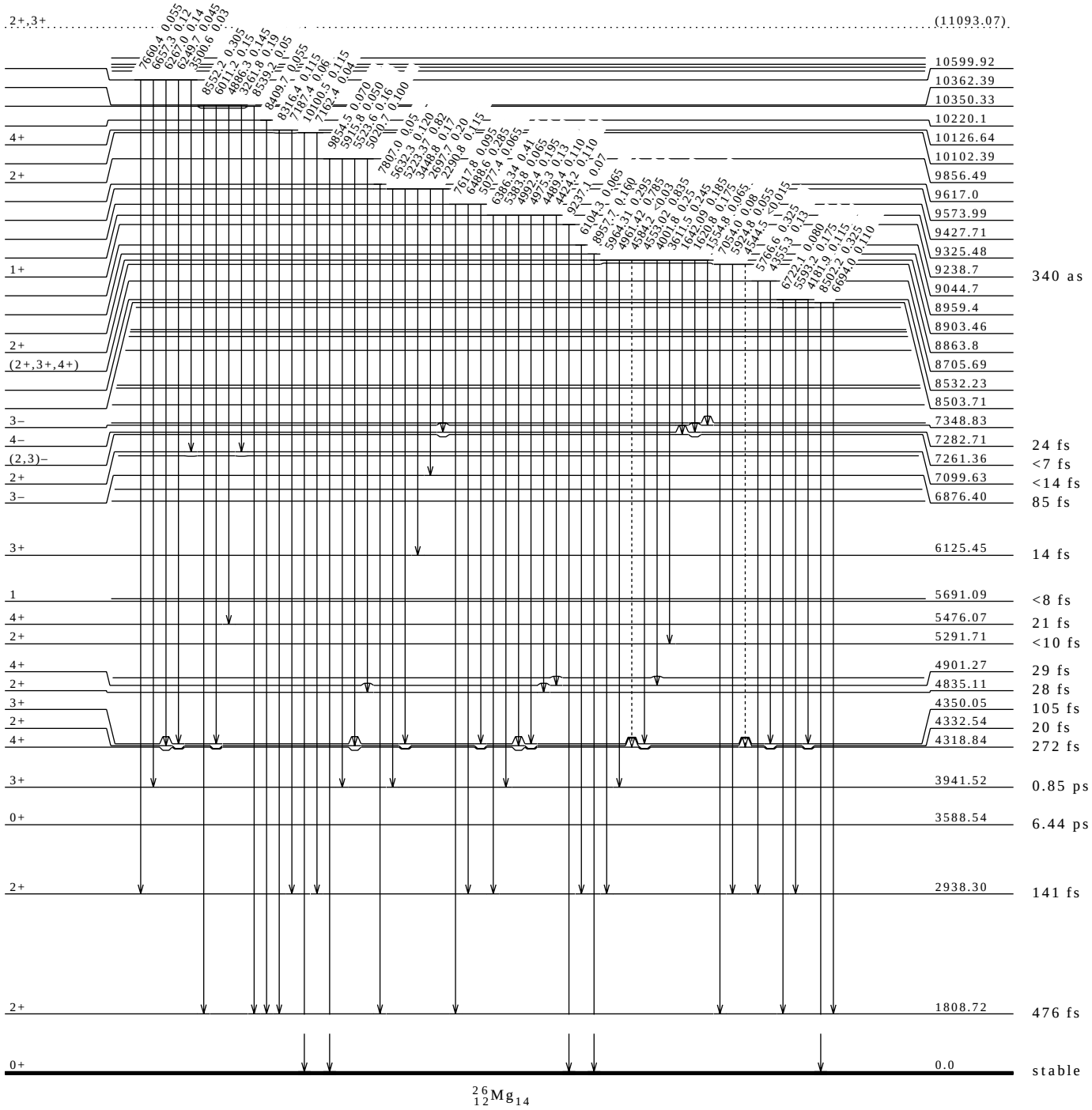


$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays
& Multiply placed; undivided intensity given

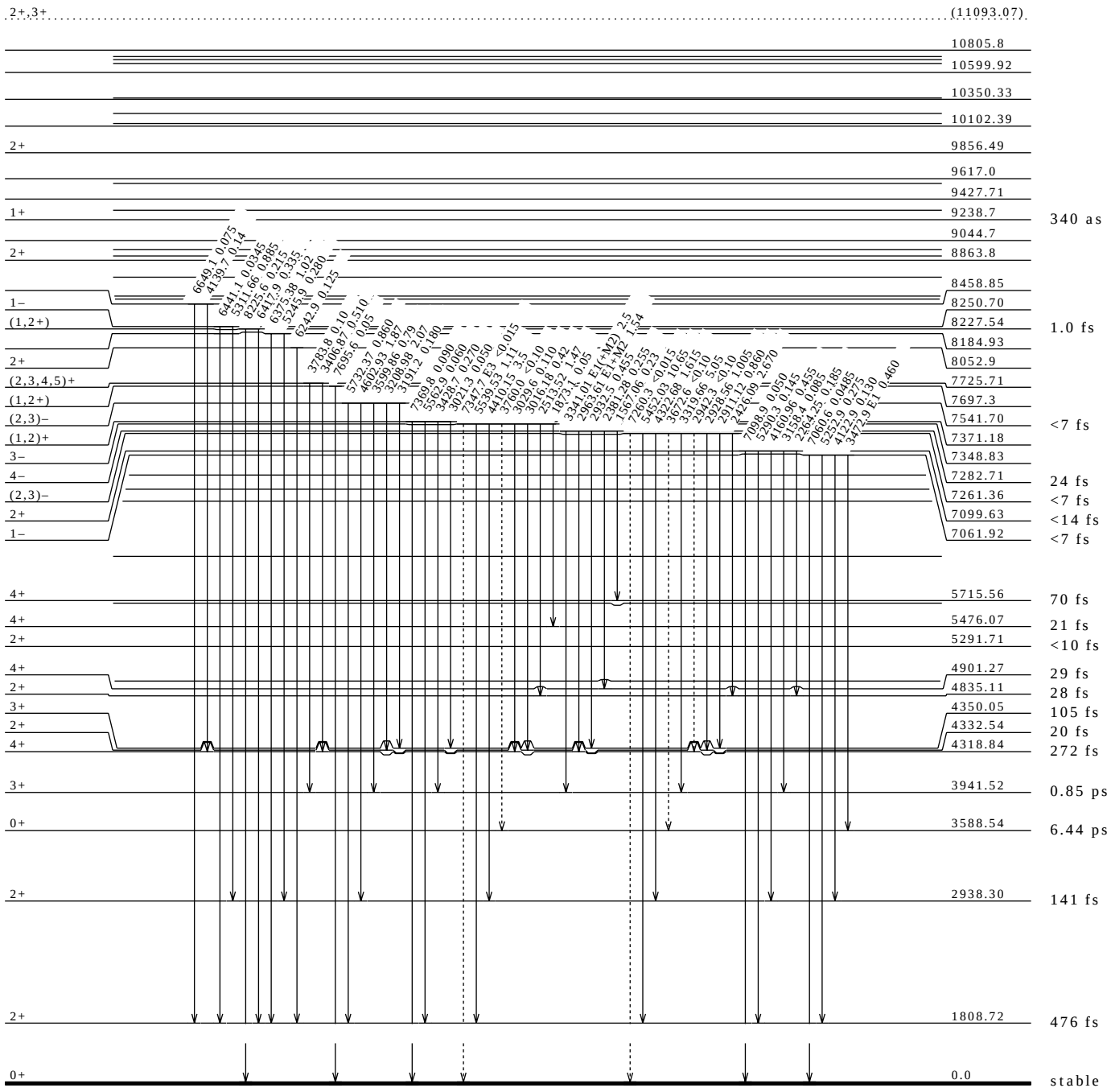


$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays
& Multiply placed; undivided intensity given

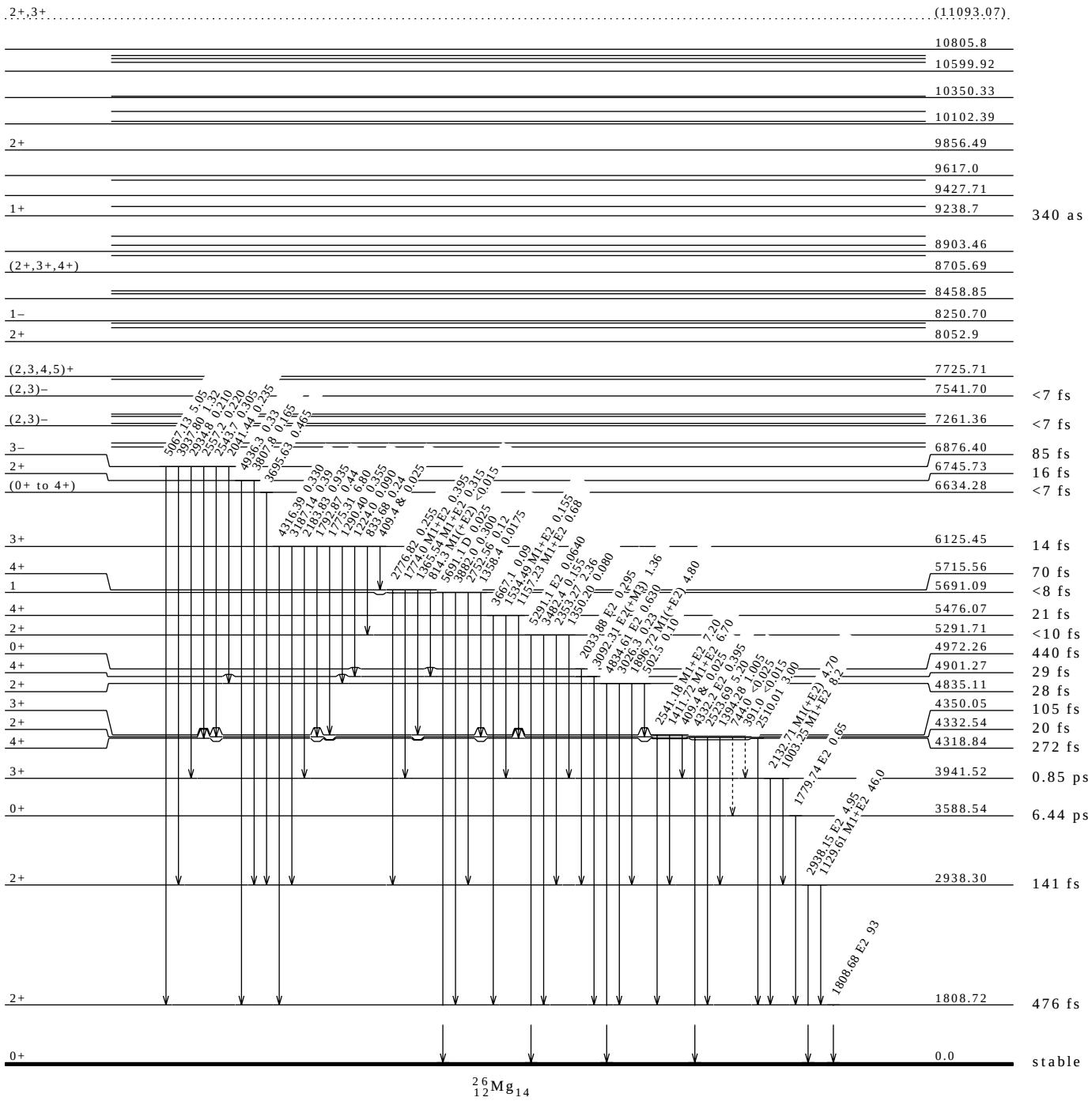


$^{26}_{12}Mg_{14}$

^{25}Mg(n,γ) E=thermal 92Wa06 (continued)

Level Scheme (continued)

Intensities: I(γ+ce) per 100 parent decays
& Multiply placed; undivided intensity given



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