^{85}As β^-n decay (2.021 s) 1993Ru01,1975Kr08,1979Kr03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni, M. Fadil, and B. Pfeiffer	NDS 110,2815 (2009)	30-Sep-2009

Parent: ^{85}As: E=0; J^π=(3/2$^-$); $T_{1/2}$=2.021 s *12*; Q(β^-n)=4687 *4*; %β^-n decay=62.6 *13*

^{85}As-Q(β^-n): From 2012Wa38.

^{85}As-J^π,$T_{1/2}$: From ^{85}As Adopted Levels. A recent $T_{1/2}$ measurement of 2.08 s *14* (2013Ma22) agrees with the Adopted value, but much less precise.

^{85}As-%β^-n decay: %β^-n=62.6 *13*; weighted average of 63.1 *10* (2014Ag12) and 59.4 *24* (1993Ru01). Other values: 39 *5* (1991Om01), 58 *10* (1991Kr15). Measurements of 23 *3* (1973Kr06) and 22 *8* (1978Cr03) were based on outdated fission yields.

Additional information 1.

1993Ru01: measured half-life and delayed neutron emission probability from mass-separated fission produced activity.

1975Kr08: fast chemical separation of fission products. ^{3}He counters. Ge(Li) detectors. Neutron spectra measured by 1979Kr03.

1979Kr03: fast chemical separation of fission products. ^{3}He counters, FWHM=12 keV for thermal neutrons and E=20 keV at 1 MeV. Ge(Li) detectors.

Other measurements: 1991Kr15, 1991Om01, 1991Om02, 1978Cr03, 1973Kr06, 1968To18, 1968To19, 1967De01, 1966To02.

Analysis and evaluation of %β^-n data: 2002Pf04, 1993Ru01, 1989BrZI, 1982Ru01, 1977Ru10, 1975Iz03.

^{84}Se Levels

E(level)[†]	J^π
0.0	0^+
1455.11 *20*	(2^+)
2122.2 *3*	(4^+)
2699.7 *3*	
3298.8 *3*	

[†] Deduced from Eγ.

γ(^{84}Se)

Iγ normalization: From feeding to g.s. equal to 35% *7* in 1979Kr03.

E$_\gamma$	I$_\gamma$[‡]	E$_i$(level)	J_i^π	E$_f$	J_f^π
577.5 *2*	6.0 *9*	2699.7		2122.2	(4^+)
667.1 *2*	42.2 *35*	2122.2	(4^+)	1455.11	(2^+)
1244.6 *2*	4.0 *7*	2699.7		1455.11	(2^+)
1455.1 *2*	100	1455.11	(2^+)	0.0	0^+
1843.7[†] *2*	3.1 *4*	3298.8		1455.11	(2^+)

[†] Tentative placement by 1975Kr08 was confirmed in later β^- decay study.

[‡] For absolute intensity per 100 decays, multiply by 0.41 *5*.

Delayed Neutrons (^{84}Se)

Measured delayed-neutron spectra: 1981ShZS, 1979Kr03, 1976Kr18 (also 1974Fr09), 1976Ru01, 1974Cr06, 1974Sh18, 1973Kr06, 1968To18, 1968To19, 1967De01, 1966To02.

Additional information 2.

Agreement of neutron intensities measured by 1979Kr03 with neutron feedings deduced from Iγ (1975Kr08) is poor.

Theory: 1979Pr03.

Continued on next page (footnotes at end of table)

^{85}As β^-n decay (2.021 s) 1993Ru01,1975Kr08,1979Kr03 (continued)

Delayed Neutrons (^{84}Se) (continued)

E(n)‡	E(^{84}Se)	I(n)#@&	E(^{85}Se)†	E(n)‡	E(^{84}Se)	I(n)#@&	E(^{85}Se)†
	0.0	<1	6931	245 *6*	3298.8	5	8090
	0.0	<1	7160	271 *2*	2122.2	15	6931
	0.0	<1	7187	495 *3*	2122.2	100	7160
	0.0	<1	7377	516 *3*	2122.2	87	7187
	0.0	<0.1	8090	708 *3*	2122.2	51	7377
	1455.11	<5	7377	925 *4*	1455.11	73	6931
	1455.11	<1	8090	1154 *7*	1455.11	36	7160
	2699.7	<5	8090	1187 *8*	1455.11	34	7187
56 *1*	1455.11	16	6043	1420 *7*	2122.2	40	8090
140 *3*	2699.7	41	7377	1506 *11*	0.0	20	6043

† Calculated taking S(n)(^{85}Se)=4537 *3* (2012Wa38).
‡ Values quoted are in lab coordinates.
# Relative neutron intensities.
@ I(n) deduced from Iγ are: 6.7 *4* (g.s.), 8.3 *14* (1455 level), 5.9 *11* (2122 level), 1.6 *3* (2700 level), and 0.51 *10* (3299 level).
& For absolute intensity per 100 decays, multiply by 0.626 *13*.

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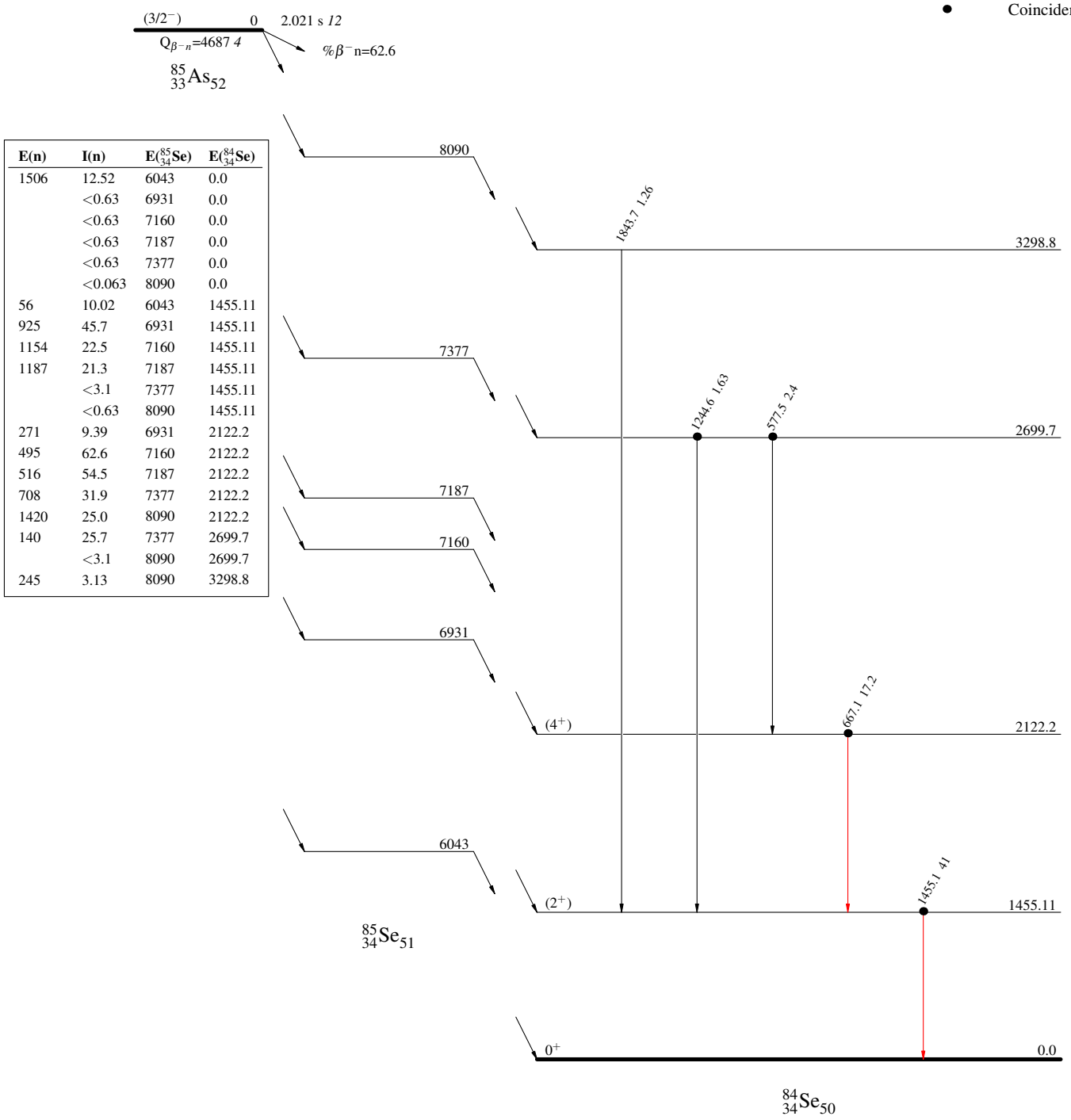
Decay Scheme

γ Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
I(n) Intensities: I(n) per 100 parent decays

Legend

● Coincidence



E(n)	I(n)	E($^{85}_{34}$Se)	E($^{84}_{34}$Se)
1506	12.52	6043	0.0
	<0.63	6931	0.0
	<0.63	7160	0.0
	<0.63	7187	0.0
	<0.63	7377	0.0
	<0.063	8090	0.0
56	10.02	6043	1455.11
925	45.7	6931	1455.11
1154	22.5	7160	1455.11
1187	21.3	7187	1455.11
	<3.1	7377	1455.11
	<0.63	8090	1455.11
271	9.39	6931	2122.2
495	62.6	7160	2122.2
516	54.5	7187	2122.2
708	31.9	7377	2122.2
1420	25.0	8090	2122.2
140	25.7	7377	2699.7
	<3.1	8090	2699.7
245	3.13	8090	3298.8