^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak	NDS 136, 163 (2016)	14-Jul-2016

Parent: ^{146}Eu: E=0.0; $J^\pi=4^-$; $T_{1/2}$=4.61 d *3*; Q(ε)=3879 *6*; %ε+%β^+ decay=100.0

^{146}Eu-$T_{1/2}$ from 'Adopted Levels', Q(g.s.) from 2012Wa38.

1965Ad06,1969AdZW,1970An18,1976Ad08,1992Ad04: ^{146}Eu ε decay [from Ta,Er(p,X), E=660 MeV]; measured Eγ, Iγ, $\gamma\gamma$ coin, E(ce), I(ce). ^{146}Sm; deduced levels, α, J^π, δ, log *ft*. Synchrocyclotron, chemical separation, Ge(Li) detectors, anti-Compton spectrometer, magnetic spectrometer.

1995Va40: ^{146}Eu ε decay [from ^{146}Gd(ε) produced in Ta(p,X), E=660 MeV]; measured Eγ, Iγ, $\gamma\gamma$ coin. ^{146}Sm; deduced levels, J^π, γ transitions. Synchrocyclotron, chemical separation, Ge(Li) detectors, sum-coincidence method.

1984Kr02,1985Fi06: ^{146}Eu ε decay [from Er(p,X), E=660 MeV]; measured $\gamma(\theta)$, oriented nuclei. ^{146}Sm; deduced levels, J^π, δ, X(E0/E2).

1975Si03: ^{146}Eu ε decay [from ^{144}Sm(α,2nγ)^{146}Gd, E=24 MeV]; measured Eγ, Iγ, $\gamma\gamma(\theta)$ coin, δ, I(ce). ^{146}Sm; deduced levels, J^π.

Others: 1988Sa06, 1968Ha39, 1968Pa13, 1967Av01, 1965Ba43, 1962Fu16, 1964Ta11.

The level scheme of ^{146}Sm containing 94 levels and 303 transitions is constructed mainly by 1992Ad04 and 1995Va40 on the basis of γ, $\gamma\gamma$ and (ce) spectra measured in ^{146}Eu (ε+β^+) decay. The 3488.46 keV and 3720.50 keV levels of 1992Ad04 scheme were not confirmed but 27 new levels were inserted by 1995Va40. It should be noted that energies of a dozen γ's observed in coincidence, do not agree to 4-5 uncertainties with the energy differences between the respective levels (normalized χ^2=2.03). Some of them were in not taken to account in a least-square fitting.

^{146}Sm Levels

E(level)†	J^π‡	E(level)†	J^π‡	E(level)†	J^π‡	E(level)†	J^π‡
0.0	0^+	2684.712 *24*	(2^+)	3151.43# *3*		3471.90 *5*	$(2^+),3^+$
747.169 *13*	2^+	2740.7# *5*		3183.924 *20*	3^+	3475.11# *6*	$5^+,(6^+)$
1380.289 *16*	3^-	2788.223 *21*	5^-	3200.014 *19*	4^-	3476.95# *15*	$(2^+,3,4,5^-)$
1381.292 *15*	4^+	2799.93 *4*	3^+	3220.85# *6*	$(3^-,4,5^-)$	3509.34 *6*	(3^+)
1647.980 *15*	2^+	2829.24# *16*	(2^+)	3223.9# *15*	$(2^+,3,4^+)$	3517.37 *3*	3^+
1811.694 *18*	6^+	2850.304 *23*	4^+	3231.63 *6*	4^+	3530.58 *5*	4^+
2045.689 *17*	4^-	2879.11 *7*		3238.639 *23*	4^+	3546.17 *4*	$2^+,3^+$
2083.426 *16*	5^-	2898.322 *20*	5^+	3244.65 *4*	$(2^+,3,4^+)$	3583.924 *24*	4^-
2155.818 *17*	2^+	2905.98# *8*	(4^+)	3259.924 *19*	5^-	3591.72 *6*	(4^+)
2222.451 *25*	6^+	2932.33# *5*	(4^+)	3278.17# *13*	2^+	3605.83 *7*	3^-
2224.99# *7*	(2^+)	2968.83 *4*	$2^+,3^+$	3288.60# *17*	$(2^+,3,4^+)$	3626.038 *17*	4^+
2269.879 *17*	3^+	2973.34 *3*	$3^+,4^+$	3329.90 *5*	$(2^+,3,4^+)$	3646.99# *4*	$(2^+,3,4^+)$
2280.882 *16*	4^+	2974.39# *15*	3^-	3338.27 *4*	3^+	3652.21 *5*	4^+
2400.92 *3*	2^+	3014.624 *23*	3^+	3361.07 *3*	$3^-,4^-$	3654.18# *7*	$(2^+,3,4^+)$
2439.070 *20*	4^+	3020.6# *11*	0^+	3368.75 *8*	(4^+)	3693.43 *9*	$(2^+,3,4^+)$
2513.414 *18*	3^-	3039.5# *10*		3376.76 *4*	4^+	3715.61 *18*	
2531.933 *16*	4^+	3058.08 *6*		3378.43 *5*	$(3^-,4,5^-)$	3720.53 *13*	3^-
2544.17 *5*	(2^+)	3067.705 *21*	3^+	3391.673 *22*	3^-	3740.77 *7*	$(3,4^+)$
2551.97# *18*		3072.932 *23*	5^+	3397.60 *8*	(4^+)	3749.42 *11*	$(3^-,4^+)$
2605.10# *6*		3093.117 *18*	3^+	3418.95 *4*	3^+	3770.33# *11*	2^+
2636.01# *7*		3105.37 *5*	$(2^+,3,4^+)$	3427.76 *8*		3786.03 *15*	$(2^+,3,4^+)$
2649.59 *6*	(2^+)	3123.28# *22*	$(2^+,3,4^+)$	3431.26# *4*	$3^-,4^-$	3790.06# *8*	$3^-,4^-$
2667.19 *3*	4^-	3129.7# *3*		3461.557 *21*	5^-	3804.25# *9*	$(3^-,4,5^+)$
2678.274 *17*	4^+	3136.460 *22*	3^-	3465.82# *4*			

† From a least-squares fit to Eγ's; normalized χ^2=1.6.

‡ From 'Adopted Levels'.

Level introduced by 1995Va40.

^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08 (continued)

ε,β^+ radiations

Warning: There is a large number of unplaced γ′s; thus, intenstities of ε transitions and log *ft* values aren′t very reliable.

E(decay)†	E(level)	Iε#	Log *ft*	I(ε+β^+)‡#	Comments
(75 *6*)	3804.25	0.23 *6*	6.26 *18*	0.23 *6*	εK=0.48 *8*; εL=0.39 *6*; εM+=0.132 *21*
(89 *6*)	3790.06	0.025 *5*	7.49 *14*	0.025 *5*	εK=0.59 *4*; εL=0.31 *3*; εM+=0.102 *11*
(93 *6*)	3786.03	0.071 *3*	7.10 *10*	0.071 *3*	εK=0.61 *4*; εL=0.293 *24*; εM+=0.096 *9*
(109 *6*)	3770.33	0.180 *24*	6.91 *10*	0.180 *24*	εK=0.669 *19*; εL=0.251 *14*; εM+=0.081 *5*
(130 *6*)	3749.42	0.028 *6*	7.95 *11*	0.028 *6*	εK=0.713 *11*; εL=0.218 *8*; εM+=0.069 *3*
(138 *6*)	3740.77	0.061 *3*	7.69 *6*	0.061 *3*	εK=0.726 *9*; εL=0.208 *7*; εM+=0.0654 *23*
(158 *6*)	3720.53	0.032 *8*	8.13 *12*	0.032 *8*	εK=0.748 *6*; εL=0.192 *5*; εM+=0.0595 *15*
(163 *6*)	3715.61	0.00286 *21*	9.21 *6*	0.00286 *21*	εK=0.753 *6*; εL=0.189 *4*; εM+=0.0584 *14*
(186 *6*)	3693.43	0.0205 *18*	8.50 *6*	0.0205 *18*	εK=0.768 *4*; εL=0.178 *3*; εM+=0.0544 *10*
(225 *6*)	3654.18	0.064 *7*	8.21 *6*	0.064 *7*	εK=0.7857 *22*; εL=0.1645 *17*; εM+=0.0498 *6*
(227 *6*)	3652.21	0.123 *8*	7.94 *4*	0.123 *8*	εK=0.7864 *22*; εL=0.1640 *16*; εM+=0.0496 *6*
(232 *6*)	3646.99	0.051 *9*	8.34 *9*	0.051 *9*	εK=0.7881 *20*; εL=0.1627 *15*; εM+=0.0492 *6*
(253 *6*)	3626.038	1.25 *4*	7.04 *3*	1.25 *4*	εK=0.7942 *16*; εL=0.1582 *12*; εM+=0.0476 *5*
(273 *6*)	3605.83	0.075 *6*	8.34 *5*	0.075 *6*	εK=0.7990 *14*; εL=0.1547 *10*; εM+=0.0464 *4*
(287 *6*)	3591.72	0.213 *8*	7.94 *3*	0.213 *8*	εK=0.8018 *12*; εL=0.1525 *9*; εM+=0.0456 *3*
(295 *6*)	3583.924	0.379 *12*	7.717 *25*	0.379 *12*	εK=0.8033 *11*; εL=0.1515 *9*; εM+=0.0453 *3*
(333 *6*)	3546.17	0.104 *5*	8.40 *3*	0.104 *5*	εK=0.8091 *9*; εL=0.1471 *6*; εM+=0.04376 *22*
(348 *6*)	3530.58	0.38 *3*	7.88 *4*	0.38 *3*	εK=0.8111 *8*; εL=0.1457 *6*; εM+=0.04325 *19*
(362 *6*)	3517.37	0.36 *4*	7.94 *6*	0.36 *4*	εK=0.8126 *7*; εL=0.1445 *5*; εM+=0.04286 *18*
(370 *6*)	3509.34	0.102 *6*	8.51 *3*	0.102 *6*	εK=0.8135 *7*; εL=0.1439 *5*; εM+=0.04264 *17*
(402 *6*)	3476.95	0.045 *5*	8.95 *5*	0.045 *5*	εK=0.8165 *6*; εL=0.1416 *4*; εM+=0.04185 *14*
(404 *6*)	3475.11	0.145 *11*	8.44 *4*	0.145 *11*	εK=0.8167 *6*; εL=0.1415 *4*; εM+=0.04181 *14*
(407 *6*)	3471.90	0.052 *5*	8.90 *5*	0.052 *5*	εK=0.8170 *6*; εL=0.1413 *4*; εM+=0.04174 *14*
(413 *6*)	3465.82	0.165 *6*	8.409 *22*	0.165 *6*	εK=0.8175 *5*; εL=0.1409 *4*; εM+=0.04161 *13*
(417 *6*)	3461.557	3.0 *4*	7.16 *6*	3.0 *4*	εK=0.8178 *5*; εL=0.1407 *4*; εM+=0.04152 *13*
(448 *6*)	3431.26	0.30 *7*	8.23 *11*	0.30 *7*	εK=0.8200 *5*; εL=0.1390 *3*; εM+=0.04096 *11*
(451 *6*)	3427.76	0.0175 *7*	9.468 *22*	0.0175 *7*	εK=0.8203 *4*; εL=0.1388 *3*; εM+=0.04090 *11*
(460 *6*)	3418.95	0.263 *9*	8.309 *20*	0.263 *9*	εK=0.8208 *4*; εL=0.1384 *3*; εM+=0.04075 *10*
(481 *6*)	3397.60	<0.07	>8.9	<0.07	εK=0.8221 *4*; εL=0.1375 *3*; εM+=0.04042 *9*
(487 *6*)	3391.673	0.404 *17*	8.177 *22*	0.404 *17*	εK=0.8225 *4*; εL=0.1372 *3*; εM+=0.04033 *9*
(501 *6*)	3378.43	0.278 *15*	8.36 *3*	0.278 *15*	εK=0.8232 *4*; εL=0.13668 *24*; εM+=0.04015 *9*
(502 *6*)	3376.76	0.551 *25*	8.071 *23*	0.551 *25*	εK=0.8233 *4*; εL=0.13661 *24*; εM+=0.04013 *9*
(510 *6*)	3368.75	0.038 *10*	9.25 *12*	0.038 *10*	εK=0.8237 *3*; εL=0.13631 *23*; εM+=0.04002 *8*
(518 *6*)	3361.07	0.189 *8*	8.565 *22*	0.189 *8*	εK=0.8240 *3*; εL=0.13603 *22*; εM+=0.03993 *8*
(541 *6*)	3338.27	0.177 *5*	8.634 *17*	0.177 *5*	εK=0.8251 *3*; εL=0.13524 *20*; εM+=0.03966 *7*
(549 *6*)	3329.90	0.148 *6*	8.726 *21*	0.148 *6*	εK=0.8255 *3*; εL=0.13497 *20*; εM+=0.03956 *7*
(590 *6*)	3288.60	0.22 *6*	8.62 *12*	0.22 *6*	εK=0.8271 *3*; εL=0.13375 *17*; εM+=0.03915 *6*
(601 *6*)	3278.17	0.14 *5*	8.83 *16*	0.14 *5*	εK=0.8275 *3*; εL=0.13347 *16*; εM+=0.03905 *6*
(619 *6*)	3259.924	2.19 *9*	7.668 *21*	2.19 *9*	εK=0.8281 *2*; εL=0.13301 *15*; εM+=0.03889 *5*
(634 *6*)	3244.65	0.355 *24*	8.48 *3*	0.355 *24*	εK=0.8286 *2*; εL=0.13265 *14*; εM+=0.03877 *5*
(640 *6*)	3238.639	0.520 *12*	8.323 *14*	0.520 *12*	εK=0.8288 *2*; εL=0.13251 *14*; εM+=0.03872 *5*
(647 *6*)	3231.63	0.41 *7*	8.44 *8*	0.41 *7*	εK=0.8290 *2*; εL=0.13235 *14*; εM+=0.03867 *5*
(655 *6*)	3223.9	0.12 *4*	8.98 *15*	0.12 *4*	εK=0.8292 *2*; εL=0.13218 *14*; εM+=0.03861 *5*
(658 *6*)	3220.85	0.20 *3*	8.76 *7*	0.20 *3*	εK=0.8293 *2*; εL=0.1321 *2*; εM+=0.03859 *5*
(679 *6*)	3200.014	0.761 *19*	8.212 *14*	0.761 *19*	εK=0.8299 *2*; εL=0.1317 *2*; εM+=0.03844 *5*
(695 *6*)	3183.924	1.87 *5*	7.843 *15*	1.87 *5*	εK=0.8303 *2*; εL=0.1314 *2*; εM+=0.03833 *4*
(728 *6*)	3151.43	0.046 *5*	9.49 *5*	0.046 *5*	εK=0.8311 *2*; εL=0.1308 *1*; εM+=0.03813 *4*
(743 *6*)	3136.460	1.22 *6*	8.090 *23*	1.22 *6*	εK=0.8314 *2*; εL=0.1305 *1*; εM+=0.03804 *4*
(749 *6*)	3129.7	0.018 *7*	9.93 *17*	0.018 *7*	εK=0.8316 *2*; εL=0.1304 *1*; εM+=0.03801 *4*
(756 *6*)	3123.28	0.21 *4*	8.87 *9*	0.21 *4*	εK=0.8317 *2*; εL=0.1303 *1*; εM+=0.03797 *4*
(774 *6*)	3105.37	0.158 *15*	9.01 *5*	0.158 *15*	εK=0.8321 *2*; εL=0.1300 *1*; εM+=0.03788 *4*
(786 *6*)	3093.117	1.03 *3*	8.215 *15*	1.03 *3*	εK=0.8323 *2*; εL=0.12986 *9*; εM+=0.03781 *3*
(806 *6*)	3072.932	0.801 *23*	8.348 *15*	0.801 *23*	εK=0.8327 *2*; εL=0.12957 *9*; εM+=0.03771 *3*

Continued on next page (footnotes at end of table)

^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08 (continued)

ε,β$^+$ radiations (continued)

E(decay)†	E(level)	Iβ$^+$ †#	Iε#	Log *ft*	I(ε+β$^+$)‡#	Comments
(811 *6*)	3067.705		0.747 *25*	8.384 *17*	0.747 *25*	εK=0.8328 *2*; εL=0.12950 *9*; εM+=0.03769 *3*
(821 *6*)	3058.08		0.038 *8*	9.69 *10*	0.038 *8*	εK=0.8330 *1*; εL=0.12937 *8*; εM+=0.03765 *3*
(840 *6*)	3039.5		0.20 *4*	8.99 *9*	0.20 *4*	εK=0.8333 *1*; εL=0.12913 *8*; εM+=0.03756 *3*
(864 *6*)	3014.624		0.93 *3*	8.346 *16*	0.93 *3*	εK=0.8337 *1*; εL=0.12882 *8*; εM+=0.03746 *3*
(905 *6*)	2974.39		0.15 *3*	9.18 *9*	0.15 *3*	εK=0.83433 *9*; εL=0.12837 *7*; εM+=0.03730 *3*
(906 *6*)	2973.34		0.66 *7*	8.54 *5*	0.66 *7*	εK=0.83434 *9*; εL=0.12836 *7*; εM+=0.03730 *3*
(910 *6*)	2968.83		0.117 *11*	9.29 *5*	0.117 *11*	εK=0.83441 *9*; εL=0.12831 *7*; εM+=0.03728 *3*
(947 *6*)	2932.33		0.36 *7*	8.84 *9*	0.36 *7*	εK=0.8349; εL=0.12793 *6*; εM+=0.03715 *2*
(973 *6*)	2905.98		0.22 *8*	9.08 *16*	0.22 *8*	εK=0.8352; εL=0.12768 *6*; εM+=0.03707 *2*
(981 *6*)	2898.322		1.25 *3*	8.333 *13*	1.25 *3*	εK=0.8353; εL=0.12761 *6*; εM+=0.03704 *2*
(1000 *6*)	2879.11		0.0515 *24*	9.735 *22*	0.0515 *24*	εK=0.8356; εL=0.12744 *6*; εM+=0.03699 *2*
(1029 *6*)	2850.304		0.400 *16*	8.871 *19*	0.400 *16*	εK=0.8359; εL=0.12720 *5*; εM+=0.03690 *2*
(1050 *6*)	2829.24		<0.11	>9.4	<0.11	εK=0.8361; εL=0.12703 *5*; εM+=0.03684 *2*
(1079 *6*)	2799.93		0.60 *3*	8.738 *23*	0.60 *3*	εK=0.8364; εL=0.12680 *5*; εM+=0.03677 *2*
(1091 *6*)	2788.223		4.43 *16*	7.879 *17*	4.43 *16*	εK=0.8365; εL=0.12671 *5*; εM+=0.03674 *2*
(1194 *6*)	2684.712		0.082 *15*	10.40^{1u} *8*	0.082 *15*	εK=0.8258 *2*; εL=0.1347 *1*; εM+=0.03952 *4* Iβ$^+$: first-forbidden unique transition determined form of the spectrum by 1964Ta11.
(1201 *6*)	2678.274		6.77 *21*	7.782 *15*	6.77 *21*	εK=0.8375; εL=0.12599 *4*; εM+=0.03649 *2*
(1212 *6*)	2667.19		0.29 *7*	9.16 *11*	0.29 *7*	εK=0.8376; εL=0.12592 *4*; εM+=0.03647 *2*
(1229 *6*)	2649.59		0.017 *4*	10.40 *11*	0.017 *4*	εK=0.8377; εL=0.12581 *4*; εM+=0.03643 *2*
(1243 *6*)	2636.01		0.030 *4*	10.17 *6*	0.030 *4*	εK=0.8378; εL=0.12573 *4*; εM+=0.03640 *2*
(1274 *6*)	2605.10		0.084 *12*	9.74 *7*	0.084 *12*	εK=0.8379; εL=0.12556 *4*; εM+=0.03634 *2*
(1327 *6*)	2551.97		0.087 *17*	9.76 *9*	0.087 *17*	εK=0.8381; εL=0.12526 *4*; εM+=0.03624 *2*
(1335 *6*)	2544.17		0.061 *4*	9.92 *3*	0.061 *4*	εK=0.8381; εL=0.12521 *4*; εM+=0.03623 *2*
(1347 *6*)	2531.933	0.00164 *14*	2.79 *8*	8.270 *14*	2.79 *8*	av Eβ=159.3 *27*; εK=0.8381; εL=0.12514 *4*; εM+=0.03621 *2*
(1366 *6*)	2513.414	0.00121 *10*	1.62 *6*	8.518 *17*	1.62 *6*	av Eβ=167.6 *27*; εK=0.8380; εL=0.12504 *4*; εM+=0.03617 *2*
(1440 *6*)	2439.070	0.010 *1*	6.1 *6*	7.99 *5*	6.1 *6*	av Eβ=200.7 *27*; εK=0.8377; εL=0.12460 *4*; εM+=0.03603 *2*
(1478 *6*)	2400.92	0.00042 *3*	0.176 *10*	9.55 *3*	0.176 *10*	av Eβ=217.6 *26*; εK=0.8373; εL=0.12436 *4*; εM+=0.03595 *2*
(1598 *6*)	2280.882	0.0424 *23*	6.99 *24*	8.024 *16*	7.03 *24*	av Eβ=270.4 *27*; εK=0.8348 *2*; εL=0.12348 *5*; εM+=0.03568 *2*
(1609 *6*)	2269.879	0.008 *3*	1.3 *4*	8.76 *14*	1.3 *4*	av Eβ=275.2 *27*; εK=0.8345 *2*; εL=0.12339 *6*; εM+=0.03565 *2*
(1654 *6*)	2224.99	0.00100 *20*	0.116 *23*	9.83 *9*	0.117 *23*	av Eβ=294.9 *27*; εK=0.8329 *3*; εL=0.12299 *6*; εM+=0.03552 *2*
(1657 *6*)	2222.451	0.00046 *5*	0.30 *3*	10.42^{1u} *5*	0.30 *3*	av Eβ=313.4 *27*; εK=0.8310; εL=0.12965 *6*; εM+=0.03777 *2*
(1723 *6*)	2155.818	0.00358 *18*	1.50 *5*	9.796^{1u} *16*	1.50 *5*	av Eβ=343.1 *27*; εK=0.8309; εL=0.12909 *6*; εM+=0.03758 *2*
(1796 *6*)	2083.426	0.044 *3*	2.39 *18*	8.59 *4*	2.43 *18*	av Eβ=357.0 *27*; εK=0.8255 *4*; εL=0.12143 *8*; εM+=0.03505 *3*
1820 *15*	2045.689	0.18 *1*	8.2 *5*	8.08 *3*	8.4 *5*	av Eβ=373.5 *27*; εK=0.8228 *5*; εL=0.12092 *9*; εM+=0.03490 *3* β$^+$/(ε+β$^+$)=0.0224 *21*; ε/β$^+$=43.7 *42* (1988Sa06).
(2067 *6*)	1811.694	0.106 *7*	1.98 *13*	8.80 *3*	2.09 *14*	av Eβ=476.3 *27*; εK=0.7988 *8*; εL=0.11682 *13*; εM+=0.03369 *4*
(2231 *6*)	1647.980	<0.02	<0.2	>9.9^{1u}	<0.2	av Eβ=548.5 *27*; εK=0.7741 *11*; εL=0.11287 *17*; εM+=0.03254 *5*
2488 *24*	1381.292	2.45 *19*	14.5 *11*	8.10 *4*	16.9 *13*	av Eβ=666.8 *27*; εK=0.7203 *14*; εL=0.10463 *21*; εM+=0.03015 *6*
2488 *24*	1380.289	1.79 *15*	10.5 *9*	8.24 *4*	12.3 *10*	av Eβ=667.2 *27*; εK=0.7201 *14*; εL=0.10459

Continued on next page (footnotes at end of table)

^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08 (continued)

ϵ,β^+ radiations (continued)

E(decay)†	E(level)	Iβ^+ †#	Iε#	Log *ft*	I($\varepsilon+\beta^+$)‡#	Comments
						21; εM+=0.03014 *6*
(3132 *6*)	747.169	<0.43	<2.4	>10.7[1u]	<2.8	av Eβ=909 *53*; εK=0.712 *5*; εL=0.1056 *8*; εM+=0.03051 *21*

† In β^+ spectra the following components were observed: 2107 keV *11*, I$\beta^+\approx$4%; 1466 keV *24*, I$\beta^+\approx$85%; 798 keV *15*, I$\beta^+\approx$11%; Iβ^+=4.2% *3* was obtained by 1962Fu16, 1964Ta11 from β^+/ce(K)(747γ). Iβ^+=5.8% *5* was obtained by 1968Pa13 from I$\gamma(^{\pm})$/Iγ(747)=0.115 *10*.

‡ Feedings were determined from intensity balance.

Absolute intensity per 100 decays.

γ(^{146}Sm)

Iγ normalization: with the assumption ΣIγ(1+α) to g.s.=100.
α(exp): calculated by the evaluators from I(ce) and Iγ values; α(K)exp are normalized to α(K)(747γ, E2)=0.00397.

Eγ[†]	Iγ[†k]	Ei(level)	J^π_i	Ef	J^π_f	Mult.[‡]	α[i]	Comments
[x]67.4[c] *1*								
[x]68.6[c] *1*								
[x]71.0[c] *1*						(D)[f]		
[x]75.1[c] *1*						(M1)[f]	3.85	α(K)=3.26 *5*; α(L)=0.465 *7*; α(M)=0.0999 *15* α(N)=0.0226 *4*; α(O)=0.00339 *5*; α(P)=0.000209 *3*
[x]95.0[d] *5*								
[x]122.1[c] *2*								
[x]123.9[cd] *5*								
[x]134.6[c] *2*								
[x]140.5[c] *2*								
[x]143.0[c] *2*								
[x]144.1[c] *2*								
[x]144.8[c] *2*								
[x]146.21 *5*	0.0323 *17*					M1	0.575	K/L1=4.8 (1968Ha39) α(K)=0.488 *7*; α(L)=0.0688 *10*; α(M)=0.01478 *21* α(N)=0.00335 *5*; α(O)=0.000502 *7*; α(P)=3.11×10^{-5} *5*
[x]146.9[c] *2*								
[x]148.2[c] *2*								
[x]151.1[c] *2*								
[x]152.7[c] *2*								
158.5 *8*	0.018 *10*	2439.070	4$^+$	2280.882	4$^+$	E2+M1	0.459 *10*	ce(K)=0.88 *13* (1968Ha39); α(K)exp=0.19 *11* α(K)=0.35 *5*; α(L)=0.09 *4*; α(M)=0.019 *8* α(N)=0.0043 *17*; α(O)=0.00059 *19*; α(P)=2.0×10^{-5} *6*
[x]165.2[c] *2*								
[x]169.11 *9*	0.0092 *10*							
172.1[c] *3*		2850.304	4$^+$	2678.274	4$^+$			
[x]174.73 *19*	0.0145 *15*							
[x]175.4[c] *3*								
[x]186.8[c] *3*								
[x]201.24 *22*	0.0106 *25*							
202.2[g] *4*	0.010[g] *2*	3259.924	5$^-$	3058.08				
210.5[g] *5*	0.006[g] *2*	2649.59	(2$^+$)	2439.070	4$^+$			
222.33 *10*	0.0145 *10*	3072.932	5$^+$	2850.304	4$^+$	M1	0.181	ce(K)=0.81 *16* (1968Ha39); α(K)exp=0.22 *5* α(K)=0.1535 *22*; α(L)=0.0214 *3*; α(M)=0.00460 *7* α(N)=0.001044 *15*; α(O)=0.0001566 *22*; α(P)=9.74×10^{-6} *14*

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[i]	Comments
224.05 *3*	0.043 *3*	3238.639	4^+	3014.624	3^+			
234.9[g] *2*	0.022[g] *1*	2280.882	4^+	2045.689	4^-			
[x]235.02 *7*	0.0221 *14*							
[x]246.3[c] *4*								
251.2[c] *4*		2531.933	4^+	2280.882	4^+			
[x]252.7[c] *4*								
[x]255.8[c] *4*								
[x]261.53 *18*	0.0058 *12*							
[x]265.2[c] *4*								
267.59[e] *3*	0.099 *8*	1647.980	2^+	1380.289	3^-			
271.683 *21*	0.886 *18*	2083.426	5^-	1811.694	6^+	E1	0.0189	ce(K)=2.7 *3* (1969AdZW); K/L1=4.7 *6* (1970An18); K/L1=5.5 (1968Ha39) α(K)exp=0.0121 *13* α(K)=0.01615 *23*; α(L)=0.00220 *3*; α(M)=0.000470 *7* α(N)=0.0001058 *15*; α(O)=1.550×10^{-5} *22*; α(P)=8.80×10^{-7} *13*
295.59[a] *25*	0.022 *5*	2974.39	3^-	2678.274	4^+			
[x]296.59 *25*	0.0068 *15*							
[x]300.4[c] *5*								
[x]308.3[c] *5*								
[x]318.75 *23*	0.0056 *15*							
[x]324.63 *25*	0.0070 *13*							
[x]348.9 *3*	0.007 *3*							
[x]355.48 *6*	0.044 *3*							
[x]357.45 *16*	0.0178 *25*							
[x]358.2[c] *5*								
[x]360.1[c]								
[x]361.1 *3*	0.0059 *22*							
[x]364.7[c] *5*								
[x]368.94 *21*	0.0127 *18*							
[x]370.5[c] *6*								
372.67[a] *23*	0.071 *23*	3770.33	2^+	3397.60	(4^+)			
376.11[a] *4*	0.056 *9*	2531.933	4^+	2155.818	2^+			
380.91[a] *7*	0.10 *4*	3517.37	3^+	3136.460	3^-			
[x]387.36 *14*	0.0197 *25*							
[x]390.7[c] *6*								
394.7[a] *15*	0.12 *4*	3223.9	$(2^+,3,4^+)$	2829.24	(2^+)			
397.31[b] *6*	0.18 *7*	2667.19	4^-	2269.879	3^+			
397.325 *19*	0.67[h] *7*	2678.274	4^+	2280.882	4^+	E2+M1	0.031 *8*	ce(K)=5.2 *3* (1969AdZW); α(K)exp=0.031 *5* α(K)=0.026 *7*; α(L)=0.0041 *5*; α(M)=0.00089 *8* α(N)=0.000201 *19*; α(O)=2.9×10^{-5} *4*; α(P)=1.6×10^{-6} *5* E_γ: poor fit; the level energy difference equals 397.392 *12*.
399.81[a] *10*	0.014 *4*	3583.924	4^-	3183.924	3^+			

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γ(^{146}Sm) (continued)

E$_γ$[†]	I$_γ$[†k]	E$_i$(level)	J^π_i	E$_f$	J^π_f	Mult.[‡]	α[i]	Comments
403.73[b] *4*	0.074[h] *8*	2684.712	(2$^+$)	2280.882	4$^+$			
410.766 *19*	0.656 *14*	2222.451	6$^+$	1811.694	6$^+$	E2+M1	0.029 *7*	ce(K)=4.3 *3* (1969AdZW); K/L1=5.5 *12* (1968Ha39); α(K)exp=0.0261 *19* α(K)=0.024 *7*; α(L)=0.0037 *5*; α(M)=0.00081 *8* α(N)=0.000183 *20*; α(O)=2.7×10^{-5} *4*; α(P)=1.5×10^{-6} *5* Mult.: possible E0 admixture (1984Kr02).
415.52[a] *16*	0.0059 *20*	3654.18	(2$^+$,3,4$^+$)	3238.639	4$^+$			
422.3[g] *3*	0.013[g] *4*	3605.83	3$^-$	3183.924	3$^+$			
430.386 *18*	4.79 *10*	1811.694	6$^+$	1381.292	4$^+$	E2	0.0193	ce(K)=17.7 *14* (1976Ad08); α(K)exp=0.0147 *13* K/L=5.2 *4*; K/L1≈5.2; K/L3≈28 (1968Ha39) α(K)=0.01567 *22*; α(L)=0.00286 *4*; α(M)=0.000628 *9* α(N)=0.0001407 *20*; α(O)=1.99×10^{-5} *3*; α(P)=8.88×10^{-7} *13*
[x]434.3[d] *5*	0.13 *5*							
441.43 *12*	0.027 *3*	3509.34	(3$^+$)	3067.705	3$^+$			
445.0[a] *3*	0.20 *4*	3123.28	(2$^+$,3,4$^+$)	2678.274	4$^+$			
449.2[a] *5*	0.13 *5*	3278.17	2$^+$	2829.24	(2$^+$)			
459.35[b] *6*	0.21[h] *6*	3288.60	(2$^+$,3,4$^+$)	2829.24	(2$^+$)			
459.4[g] *2*	0.053[g] *4*	3391.673	3$^-$	2932.33	(4$^+$)			
[x]463.32 *7*	2.48 *27*							
467.762 *25*	0.068 *4*	2513.414	3$^-$	2045.689	4$^-$			
471.67 *4*	0.0365 *18*	3259.924	5$^-$	2788.223	5$^-$			
[x]482.3[d] *5*	0.034							
[x]488.3[c] *7*								
[x]501.8[c] *8*								
[x]519.25 *9*	0.043 *3*							
522.2[be] *2*	0.139 *4*	2678.274	4$^+$	2155.818	2$^+$			
[x]529.15 *15*	0.032 *3*							
532.87 *7*	0.133 *8*	3626.038	4$^+$	3093.117	3$^+$	E2	0.01085	ce(K)=0.30 *2* (1969AdZW); α(K)exp=0.0090 *8* α(K)=0.00894 *13*; α(L)=0.001493 *21*; α(M)=0.000326 *5* α(N)=7.31×10^{-5} *11*; α(O)=1.051×10^{-5} *15*; α(P)=5.17×10^{-7} *8*
534.1[g] *2*	0.084[g] *5*	3591.72	(4$^+$)	3058.08				
534.26[b] *9*	0.13[h] *4*	2973.34	3$^+$,4$^+$	2439.070	4$^+$			
544.32[a] *13*	0.14 *6*	3804.25	(3$^-$,4,5$^+$)	3259.924	5$^-$			
548.4[a] *10*	0.014 *4*	3288.60	(2$^+$,3,4$^+$)	2740.7				
549.1[a] *10*	0.14 *3*	2829.24	(2$^+$)	2280.882	4$^+$			
550.4 *3*	0.035 *6*	3338.27	3$^+$	2788.223	5$^-$			
553.35[a] *11*	0.38 *7*	3231.63	4$^+$	2678.274	4$^+$			
553.8[a] *10*	0.026 *8*	3646.99	(2$^+$,3,4$^+$)	3093.117	3$^+$			
[x]559.3[c] *8*								
[x]567.5 *5*								
569.11[a] *10*	0.020 *6*	3583.924	4$^-$	3014.624	3$^+$			

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#j]	α[i]	Comments
569.53 *5*	0.118[h] *7*	2850.304	4^+	2280.882	4^+	M1		0.01551	ce(K)=0.37 *2* (1969AdZW); α(K)exp=0.0124 *24* α(K)=0.01323 *19*; α(L)=0.00179 *3*; α(M)=0.000384 *6* α(N)=8.70×10^{-5} *13*; α(O)=1.309×10^{-5} *19*; α(P)=8.27×10^{-7} *12*
575.64 *16*	0.021 *6*	3014.624	3^+	2439.070	4^+				
583.76 *3*	0.114 *6*	2667.19	4^-	2083.426	5^-				
[x]593.15 *20*	0.019 *4*								
600.4[a] *10*	0.20 *4*	3039.5		2439.070	4^+				
606.22[b] *22*	0.017 *4*	3790.06	$3^-,4^-$	3183.924	3^+				
611.46 *25*	0.015 *4*	3626.038	4^+	3014.624	3^+				
621.85 *3*	0.555 *15*	2269.879	3^+	1647.980	2^+	M1+E2		0.010 *3*	ce(K)=1.0 *3* (1976Ad08); α(K)exp=0.0085 *25* α(K)=0.0084 *23*; α(L)=0.00120 *24*; α(M)=0.00026 *5* α(N)=5.8×10^{-5} *12*; α(O)=8.7×10^{-6} *19*; α(P)=5.1×10^{-7} *16*
624.75[b] *14*	0.082 *10*	3475.11	$5^+,(6^+)$	2850.304	4^+				
632.888[b] *40*	1.30 *2*	2280.882	4^+	1647.980	2^+				
633.083 *23*	36.4 *8*	1380.289	3^-	747.169	2^+	E1		0.00257	ce(K)=22.4 *18* (1970An18); α(K)exp=0.0024 *2* α(K)=0.00220 *3*; α(L)=0.000289 *4*; α(M)=6.15×10^{-5} *9* α(N)=1.389×10^{-5} *20*; α(O)=2.07×10^{-6} *3*; α(P)=1.262×10^{-7} *18*
634.137 *21*	45.7 *10*	1381.292	4^+	747.169	2^+	E2		0.00699	ce(K)=65.6 *28* (1970An18); (L1+L2)/L3=9 *3*; α(K)exp=0.0057 *3* α(K)=0.00582 *9*; α(L)=0.000916 *13*; α(M)=0.000199 *3* α(N)=4.47×10^{-5} *7*; α(O)=6.50×10^{-6} *9*; α(P)=3.41×10^{-7} *5*
636.22[a] *13*	0.19 *8*	2905.98	(4^+)	2269.879	3^+				
[x]651.68 *24*	0.046 *6*								
653.0[e] *3*	0.024 *8*	3720.53	3^-	3067.705	3^+				
664.65 *14*	0.48 *42*	2045.689	4^-	1381.292	4^+	[E1+M2]		0.0026 *3*	ce(K)=1.7 *4* (1970An18) α(K)=0.00222 *24*; α(L)=0.00029 *4*; α(M)=6.3×10^{-5} *8* α(N)=1.42×10^{-5} *18*; α(O)=2.1×10^{-6} *3*; α(P)=1.30×10^{-7} *16* E_γ: determined by 1970An18 from internal conversion spectra. I_γ: from I(ce)K and α(K)$_{th}$. Mult.: see comment to 665.4γ.
665.424 *15*	10.52 *15*	2045.689	4^-	1380.289	3^-	M1+E2	−2.7[@] *5*	0.00674 *24*	ce(K)=13.1 *6* (1970An18) α(K)=0.00565 *21*; α(L)=0.000854 *24*; α(M)=0.000185 *5* α(N)=4.16×10^{-5} *12*; α(O)=6.10×10^{-6} *18*; α(P)=3.36×10^{-7} *14* E_γ: 665.40 *13* in 1970An18. I_γ: from I(ce)K and α(K)$_{th}$. Mult.: deduced from I(664.7γ+665.4γ), α(K)$_{th}$ and acceptable multipolarities for both γ′s (1970An18).

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γ(^{146}Sm) (continued)

E_γ [†]	I_γ [†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#j]	α [i]	Comments
[x]667.3[c] *10*	0.19 *7*								
[x]673.40 *9*	0.031 *3*								
686.54 *10*	0.0322 *24*	3200.014	4⁻	2513.414	3⁻				
[x]692.55 *11*	0.049 *4*								
702.099 *19*	3.88 *11*	2083.426	5⁻	1381.292	4⁺	E1		0.00207	ce(K)=1.99 *34* (1970An18); α(K)exp=0.00204 *35* α(K)=0.001775 *25*; α(L)=0.000232 *4*; α(M)=4.93×10⁻⁵ *7* α(N)=1.113×10⁻⁵ *16*; α(O)=1.660×10⁻⁶ *24*; α(P)=1.020×10⁻⁷ *15*
703.089 *22*	3.80 *11*	2083.426	5⁻	1380.289	3⁻	E2		0.00545	ce(K)=3.9 *5* (1970An18); α(K)exp=0.0041 *5*; K/L1=4.7 *6* (1970An18) K/L1=5.5 (1968Ha39) α(K)=0.00457 *7*; α(L)=0.000697 *10*; α(M)=0.0001508 *22* α(N)=3.40×10⁻⁵ *5*; α(O)=4.96×10⁻⁶ *7*; α(P)=2.69×10⁻⁷ *4*
703.46[a] *6*	0.108 *20*	2973.34	3⁺,4⁺	2269.879	3⁺				
704.774 *19*	1.91 *4*	2788.223	5⁻	2083.426	5⁻	M1		0.00915	ce(K)=4.0 *6*; α(K)exp=0.0083 *12* α(K)=0.00782 *11*; α(L)=0.001052 *15*; α(M)=0.000225 *4* α(N)=5.10×10⁻⁵ *8*; α(O)=7.68×10⁻⁶ *11*; α(P)=4.87×10⁻⁷ *7*
[x]712.0[c] *11*									
[x]713.6[c] *11*									
715.1[c] *11*		2799.93	3⁺	2083.426	5⁻				
721.24 *8*	0.054 *4*	3509.34	(3⁺)	2788.223	5⁻				
733.97 *13*	0.048 *6*	3014.624	3⁺	2280.882	4⁺				
736.55[b] *11*	0.080 *8*	3804.25	(3⁻,4,5⁺)	3067.705	3⁺				
[x]738.54 *9*	0.098 *8*								
742.65 *15*	0.72 *10*	2788.223	5⁻	2045.689	4⁻				
747.159 *16*	100 *2*	747.169	2⁺	0.0	0⁺	E2		0.00473	ce(K)=100; K/L=6.2 *4* (1965Ba43) α(K)=0.00397 *6*; α(L)=0.000596 *9*; α(M)=0.0001289 *18* α(N)=2.90×10⁻⁵ *4*; α(O)=4.25×10⁻⁶ *6*; α(P)=2.34×10⁻⁷ *4*
749.8[a] *15*	0.050 *5*	3770.33	2⁺	3020.6	0⁺				
753.80[&n] *8*	0.027 *3*	2799.93	3⁺	2045.689	4⁻				E_γ: poor fit; the level energy difference equals 754.17 *4*. γ ray not reported in 1995Va40.
760.963 *23*	0.094 *3*	3200.014	4⁻	2439.070	4⁺				
766.838 *23*	0.0922 *24*	2850.304	4⁺	2083.426	5⁻				
[x]769.7[c] *12*									
775.533 *25*	0.097 *3*	2155.818	2⁺	1380.289	3⁻				
783.96[e] *3*	0.048 *2*	3583.924	4⁻	2799.93	3⁺				
791.107 *19*	0.463 *10*	2439.070	4⁺	1647.980	2⁺	E2		0.00415	α(K)=0.00349 *5*; α(L)=0.000517 *8*; α(M)=0.0001115 *16* α(N)=2.52×10⁻⁵ *4*; α(O)=3.69×10⁻⁶ *6*; α(P)=2.06×10⁻⁷ *3* Mult.: E2+M3, δ=−0.09 *10* in 1984Kr02; α=0.0044 *10* from BrIcc.

γ(^{146}Sm) (continued)

$E_γ$[†]	$I_γ$[†k]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[‡]	δ[#j]	α[i]	Comments
^{x}797.56 *22*	0.041 *5*								
804.67 *6*	0.095 *3*	2850.304	4$^+$	2045.689	4$^-$	(E1+M2)	0.79 *+29−24*	0.0078 *25*	ce(K)=0.16 *5* (1965Ba43); α(K)exp=0.0067 *21* α(K)=0.0066 *21*; α(L)=0.0009 *3*; α(M)=0.00020 *7* α(N)=4.6×10^{-5} *15*; α(O)=6.9×10^{-6} *23*; α(P)=4.3×10^{-7} *14* Mult.: M1 from α(K)exp (calculated α(K)=0.00566), but decay scheme requires E1. Hence, if placement is correct, it must be E1+M2.
812.21 *3*	0.0802 *25*	3093.117	3$^+$	2280.882	4$^+$	M1		0.00648	ce(K)=0.19 *5* (1965Ba43); α(K)exp=0.0094 *25* α(K)=0.00554 *8*; α(L)=0.000742 *11*; α(M)=0.0001584 *23* α(N)=3.59×10^{-5} *5*; α(O)=5.41×10^{-6} *8*; α(P)=3.44×10^{-7} *5*
814.70 *25*	0.0088 *16*	2898.322	5$^+$	2083.426	5$^-$				
^{x}818.7[c] *12*									
^{x}821.1[c] *12*									
823.21 *3*	0.0562 *20*	3093.117	3$^+$	2269.879	3$^+$	E2		0.00379	ce(K)=0.04 *2*; α(K)exp=0.0028 *14* (1976Ad08) α(K)=0.00320 *5*; α(L)=0.000469 *7*; α(M)=0.0001011 *15* α(N)=2.28×10^{-5} *4*; α(O)=3.35×10^{-6} *5*; α(P)=1.89×10^{-7} *3*
826.32 *12*	0.0138 *20*	3626.038	4$^+$	2799.93	3$^+$	E2,M1		0.0050 *13*	ce(K)=0.02 *1*; α(K)exp=0.006 *3* (1976Ad08) α(K)=0.0042 *11*; α(L)=0.00059 *13*; α(M)=0.00013 *3* α(N)=2.9×10^{-5} *6*; α(O)=4.3×10^{-6} *10*; α(P)=2.6×10^{-7} *8*
833.1[g] *2*	0.012[g] *1*	2879.11		2045.689	4$^-$				
833.11[b] *9*	0.0122 *13*	3058.08		2224.99	(2$^+$)				
837.72[b] *8*	0.0061[h] *8*	3238.639	4$^+$	2400.92	2$^+$				
838.02[b] *15*	0.0049[h] *10*	3770.33	2$^+$	2932.33	(4$^+$)				
840.94 *10*	0.0205 *11*	2222.451	6$^+$	1381.292	4$^+$				
843.72[a] *9*	0.0033[h] *7*	3244.65	(2$^+$,3,4$^+$)	2400.92	2$^+$				
844.72[b] *15*	0.055 *20*	2224.99	(2$^+$)	1380.289	3$^-$				
845.81[a] *10*	0.037[h] *8*	3530.58	4$^+$	2684.712	(2$^+$)				
848.84[mb] *9*	0.14[m] *3*	2932.33	(4$^+$)	2083.426	5$^-$				
848.85[mb] *30*	0.018[m] *7*	3129.7		2280.882	4$^+$				
850.49 *10*	0.236 *13*	3072.932	5$^+$	2222.451	6$^+$	M1		0.00580	ce(K)=0.42 *6*; α(K)exp=0.0071 *10* (1976Ad08) α(K)=0.00496 *7*; α(L)=0.000663 *10*; α(M)=0.0001415 *20* α(N)=3.21×10^{-5} *5*; α(O)=4.84×10^{-6} *7*; α(P)=3.07×10^{-7} *5*

$^{146}_{62}Sm_{84}$-10

^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08 (continued)

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#j]	α[i]	Comments
852.28[b] *12*	0.039[h] *9*	3530.58	4$^+$	2678.274	4$^+$				ce(K)≈0.015; α(K)exp≈0.0015 (1965Ba43)
865.353 *23*	0.139 *3*	2513.414	3$^-$	1647.980	2$^+$	E1+(M2)	−0.10 *+20−26*	0.0015 *14*	α(K)=0.0013 *12*; α(L)=0.00017 *17*; α(M)=4.E−5 *4* α(N)=8.E−6 *9*; α(O)=1.2×10^{-6} *13*; α(P)=7.E−8 *8*
870.55[a] *6*	0.011 *4*	3151.43		2280.882	4$^+$				
881.5[g] *2*	0.036[g] *2*	3530.58	4$^+$	2649.59	(2$^+$)				
881.55 *3*	0.0355 *16*	3151.43		2269.879	3$^+$				
888.46 *15*	1.10 *25*	2269.879	3$^+$	1381.292	4$^+$	E2+M1	−0.36 *+11−18*	0.00499 *24*	α(K)=0.00426 *21*; α(L)=0.000572 *25*; α(M)=0.000122 *5* α(N)=2.77×10^{-5} *12*; α(O)=4.17×10^{-6} *19*; α(P)=2.63×10^{-7} *14* δ: −0.42 *5* (1975Si03). Ice(K)(888γ+889γ)=14.5 *16* (1976Ad08), α(K)exp=0.0047 *11* calculated taking into account of α(K)(889γ,E1)=0.0011.
889.44 *15*	0.59 *17*	2269.879	3$^+$	1380.289	3$^-$	[E1]		1.29×10^{-3}	α(K)=0.001108 *16*; α(L)=0.0001431 *20*; α(M)=3.04×10^{-5} *5* α(N)=6.88×10^{-6} *10*; α(O)=1.028×10^{-6} *15*; α(P)=6.40×10^{-8} *9*
891.29[a] *20*	0.12 *3*	2974.39	3$^-$	2083.426	5$^-$				
899.486[&] *22*	1.38 *10*	2280.882	4$^+$	1381.292	4$^+$	M1+E2	0.12[@] *10*	0.00504 *10*	ce(K)=1.4 *4* (1970An18); α(K)exp=0.0040 *12* α(K)=0.00431 *9*; α(L)=0.000576 *11*; α(M)=0.0001229 *22* α(N)=2.79×10^{-5} *5*; α(O)=4.20×10^{-6} *8*; α(P)=2.67×10^{-7} *6* δ: the 2nd value of δ=−1.25 *25* (1975Si03). E_γ: poor fit; the level energy difference equals 899.614 *12*.
900.797 *18*	2.99 *21*	1647.980	2$^+$	747.169	2$^+$	E2+M1	−2.2[@] *5*	0.00344 *18*	ce(K)=2.4 *4* (1970An18); α(K)exp=0.0032 *6* α(K)=0.00292 *15*; α(L)=0.000412 *18*; α(M)=8.9×10^{-5} *4* α(N)=2.00×10^{-5} *9*; α(O)=2.97×10^{-6} *14*; α(P)=1.75×10^{-7} *10*
903.98[a] *25*	0.051 *13*	2551.97		1647.980	2$^+$				
914.031 *16*	0.630 *14*	3183.924	3$^+$	2269.879	3$^+$	M1		0.00488	ce(K)=0.7 *1*; ce(L)=0.12 *6* (1965Ba43); α(K)exp=0.0044 *6*; α(L)exp=0.0008 *4* α(K)=0.00417 *6*; α(L)=0.000556 *8*; α(M)=0.0001188 *17* α(N)=2.69×10^{-5} *4*; α(O)=4.06×10^{-6} *6*; α(P)=2.58×10^{-7} *4*
918.94 *6*	0.071 *3*	3200.014	4$^-$	2280.882	4$^+$				
^{x}927.78 *17*	0.0150 *20*								

$^{146}_{62}Sm_{84}$-11

γ(^{146}Sm) (continued)

Eγ[†]	Iγ[†k]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[i]	Comments
930.39 *11*	0.020 *5*	3200.014	4⁻	2269.879	3⁺			
937.29[a] *4*	0.034[h] *4*	3093.117	3⁺	2155.818	2⁺			
937.33[b] *8*	0.0022[h] *4*	3338.27	3⁺	2400.92	2⁺			
937.68[b] *8*	0.044[h] *16*	3376.76	4⁺	2439.070	4⁺			
941.30 *3*	0.161 *5*	3626.038	4⁺	2684.712	(2⁺)			
948.14[b] *15*	0.0082 *13*	3461.557	5⁻	2513.414	3⁻			
968.83[e] *9*	0.047 *3*	3014.624	3⁺	2045.689	4⁻			
[x]971.47 *6*	0.067 *4*							
[x]972.5[c] *15*								
974.77[b] *8*	0.149[h] *22*	3244.65	(2⁺,3,4⁺)	2269.879	3⁺			
974.9[g] *1*	0.100[g] *5*	3058.08		2083.426	5⁻			E_γ: Obviously, 274.9 keV is a misprint in 1993GrZX.
976.51[b] *5*	0.19[h] *7*	2788.223	5⁻	1811.694	6⁺			
979.09 *10*	0.045 *3*	3259.924	5⁻	2280.882	4⁺			
989.49 *4*	0.0661 *22*	3072.932	5⁺	2083.426	5⁻			
998.7[e] *3*	0.0046 *13*	3530.58	4⁺	2531.933	4⁺			
1004.3 *4*	0.010 *3*	3517.37	3⁺	2513.414	3⁻			
1009.27 *11*	0.0119 *12*	3231.63	4⁺	2222.451	6⁺			
1017.08 *16*	0.0175 *21*	3530.58	4⁺	2513.414	3⁻			
1022.05[a] *9*	0.023 *7*	3067.705	3⁺	2045.689	4⁻			
1027.26 *5*	0.073 *3*	3072.932	5⁺	2045.689	4⁻			
1028.10[a] *5*	0.021 *3*	3183.924	3⁺	2155.818	2⁺			
1030.274[b] *37*	0.0171[h] *14*	2678.274	4⁺	1647.980	2⁺			
1036.71 *10*	0.052 *3*	2684.712	(2⁺)	1647.980	2⁺			
1038.35 *20*	0.024 *3*	2850.304	4⁺	1811.694	6⁺			
1047.36 *5*	0.0497 *15*	3093.117	3⁺	2045.689	4⁻			
[x]1053.0 *3*	0.10 *3*							
1057.62 *10*	2.3 *4*	2439.070	4⁺	1381.292	4⁺	E2+M1	0.0028 *7*	α(K)=0.0024 *6*; α(L)=0.00033 *7*; α(M)=7.0×10^{-5} *14* α(N)=1.6×10^{-5} *4*; α(O)=2.4×10^{-6} *5*; α(P)=1.5×10^{-7} *4* Ice(K)(1057.62γ+1058.71γ)=2.09 *10* (1976Ad08), α(K)exp=0.0022 *17* calculated taking into account of α(K)(1058γ,E1)=0.000798 *12*. δ: ≤−0.88 or ≥+11 (1992Ad04).
1058.71 *10*	4.0 *4*	2439.070	4⁺	1380.289	3⁻	[E1]	9.28×10^{-4}	α(K)=0.000798 *12*; α(L)=0.0001023 *15*; α(M)=2.17×10^{-5} *3* α(N)=4.92×10^{-6} *7*; α(O)=7.36×10^{-7} *11*; α(P)=4.62×10^{-8} *7*
1063.6[b] *7*	0.009 *3*	3804.25	(3⁻,4,5⁺)	2740.7				
1068.32 *7*	0.0343 *17*	3338.27	3⁺	2269.879	3⁺			
1078.29[a] *7*	0.0380 *13*	3517.37	3⁺	2439.070	4⁺			
[x]1081.2[c] *16*								
1086.637 *15*	0.573 *12*	2898.322	5⁺	1811.694	6⁺	M1	0.00323	ce(K)=0.41 *8*; α(K)exp=0.0028 *6*

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#j]	α[i]	Comments
									α(K)=0.00277 *4*; α(L)=0.000367 *6*; α(M)=7.83×10^{-5} *11* α(N)=1.777×10^{-5} *25*; α(O)=2.68×10^{-6} *4*; α(P)=1.710×10^{-7} *24*
1088.83[a] *8*	0.032 *3*	3244.65	(2$^+$,3,4$^+$)	2155.818	2$^+$				
1090.844[&] *21*	0.218 *5*	3136.460	3$^-$	2045.689	4$^-$	M1		0.00321	ce(K)=0.19 *7*; α(K)exp=0.0036 *13* (1965Ba43) α(K)=0.00274 *4*; α(L)=0.000364 *5*; α(M)=7.76×10^{-5} *11* α(N)=1.761×10^{-5} *25*; α(O)=2.65×10^{-6} *4*; α(P)=1.695×10^{-7} *24* E_γ: poor fit; the level energy difference equals 1090.664 *25*.
1094.10[b] *11*	0.0275 *24*	2905.98	(4$^+$)	1811.694	6$^+$				
1094.10[a] *4*	0.059 *22*	3626.038	4$^+$	2531.933	4$^+$				
[x]1102.64 *15*	0.0113 *23*								
[x]1107.20 *8*	0.044 *3*								
1110.03[b] *16*	0.022 *3*	3654.18	(2$^+$,3,4$^+$)	2544.17	(2$^+$)				
1110.79[a] *5*	0.013 *3*	3391.673	3$^-$	2280.882	4$^+$				
1116.566 *15*	0.429 *9*	3200.014	4$^-$	2083.426	5$^-$	M1+E2	−0.30 *+9−12*	0.00295 *9*	ce(K)=0.35 *6*; ce(L)≈0.06 (1965Ba43); α(K)exp=0.0033 *6*; α(L)exp≈0.00056 α(K)=0.00252 *8*; α(L)=0.000335 *9*; α(M)=7.15×10^{-5} *19* α(N)=1.62×10^{-5} *5*; α(O)=2.44×10^{-6} *7*; α(P)=1.55×10^{-7} *5*; α(IPF)=6.29×10^{-7} *10* δ: the 2nd value −2.5 *+4−6*, at that α(K)=0.00181.
[x]1118.0[c] *17*									
1120.79 *9*	0.0266 *15*	2932.33	(4$^+$)	1811.694	6$^+$				
1132.05 *7*	0.12 *3*	2513.414	3$^-$	1381.292	4$^+$	[E1]		8.26×10^{-4}	α(K)=0.000706 *10*; α(L)=9.03×10^{-5} *13*; α(M)=1.92×10^{-5} *3* α(N)=4.34×10^{-6} *6*; α(O)=6.50×10^{-7} *10*; α(P)=4.09×10^{-8} *6*; α(IPF)=5.73×10^{-6} *9*
1133.11 *7*	0.70 *3*	2513.414	3$^-$	1380.289	3$^-$	M1+E2	+0.07 *+9−7*	0.00293 *5*	α(K)=0.00251 *4*; α(L)=0.000332 *6*; α(M)=7.08×10^{-5} *11* α(N)=1.606×10^{-5} *25*; α(O)=2.42×10^{-6} *4*; α(P)=1.546×10^{-7} *25*; α(IPF)=1.109×10^{-6} *16* Ice(K)(1132γ+1133γ)=0.42 *10* (1976Ad08), α(K)exp=0.0023 *6* calculated taking into account of α(K)(1132γ, E1)=0.000706 *10*. δ: the 2nd value is +1.14 *18*, α(K)=0.00201 *8*.
1137.66[b] *13*	0.043[h] *3*	3220.85	(3$^-$,4,5$^-$)	2083.426	5$^-$				
1137.8[g] *3*	0.043[g] *3*	3418.95	3$^+$	2280.882	4$^+$				

From ENSDF

$^{146}_{62}$Sm$_{84}$-13

γ(^{146}Sm) (continued)

E$_\gamma$[†]	I$_\gamma$[†k]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[‡]	δ[#j]	α[i]	Comments
1150.626 *15*	2.15 *4*	2531.933	4$^+$	1381.292	4$^+$	M1+E2	−0.42[@] *5*	0.00268 *5*	ce(K)=1.31 *9*; α(K)exp=0.00243 *17* (1969AdZW) α(K)=0.00230 *5*; α(L)=0.000305 *6*; α(M)=6.51×10^{-5} *12* α(N)=1.48×10^{-5} *3*; α(O)=2.22×10^{-6} *4*; α(P)=1.41×10^{-7} *3*; α(IPF)=1.87×10^{-6} *3*
1155.08 *4*	0.192 *6*	3238.639	4$^+$	2083.426	5$^-$				E$_\gamma$: poor fit; the level energy difference equals 1155.215 *20*.
1161.75 *14*	0.0126 *15*	3693.43	(2$^+$,3,4$^+$)	2531.933	4$^+$				
[x]1164.7[c] *17*									
1166.67 *10*	0.017 *3*	3605.83	3$^-$	2439.070	4$^+$				
1175.09[b] *11*	0.14[h] *3*	3220.85	(3$^-$,4,5$^-$)	2045.689	4$^-$				
1175.09 *11*	0.111 *19*	3397.60	(4$^+$)	2222.451	6$^+$				
1176.522 *23*	1.64 *4*	3259.924	5$^-$	2083.426	5$^-$	M1+E2	0.77 *10*	0.00235 *7*	ce(K)=1.09 *8*; K:L:M=1.02 *15*:0.17 *6*:0.06 (1965Ba43); α(K)exp=0.0026 *2* α(K)=0.00201 *6*; α(L)=0.000268 *7*; α(M)=5.73×10^{-5} *15* α(N)=1.30×10^{-5} *4*; α(O)=1.95×10^{-6} *6*; α(P)=1.23×10^{-7} *4*; α(IPF)=3.62×10^{-6} *6* δ: other value 0.01 *6* (1984Kr02), at that α(K)=0.00230 *4*.
1184.93[b] *3*	0.133[h] *3*	3465.82		2280.882	4$^+$				
1186.98 *10*	0.0315 *18*	3626.038	4$^+$	2439.070	4$^+$				
1190.1[e] *3*	0.0641 *21*	3591.72	(4$^+$)	2400.92	2$^+$				
1191.01[a] *10*	0.013 *4*	3471.90	(2$^+$),3$^+$	2280.882	4$^+$				
1198.3[b] *10*	0.008 *7*	3804.25	(3$^-$,4,5$^+$)	2605.10					
1208.82 *8*	0.0297 *19*	3740.77	(3,4$^+$)	2531.933	4$^+$				
1214.209 *21*	0.319 *7*	3259.924	5$^-$	2045.689	4$^-$	M1+E2	0.75 *+26−13*	0.00220 *13*	α(K)=0.00188 *11*; α(L)=0.000251 *14*; α(M)=5.4×10^{-5} *3* α(N)=1.21×10^{-5} *7*; α(O)=1.82×10^{-6} *10*; α(P)=1.15×10^{-7} *7*; α(IPF)=7.67×10^{-6} *13* δ: other value 1.9 *5* (1984Kr02).
1225.39 *11*	0.0136 *14*	3626.038	4$^+$	2400.92	2$^+$				
1231.03 *10*	0.0167 *16*	2879.11		1647.980	2$^+$				
1239.86 *20*	0.0082 *19*	3509.34	(3$^+$)	2269.879	3$^+$				
[x]1251.8[c] *19*									
1255.72[b] *6*	0.030 *4*	2636.01		1380.289	3$^-$				E$_\gamma$: doublet line in 1995Va40, ΔEγ from coincidence measurement can not define what of 1380-1381 doublet levels is populated.
1260.89 *9*	0.0239 *18*	3530.58	4$^+$	2269.879	3$^+$				
[x]1266.0[c] *5*									
[x]1273.6[c] *19*	0.10 *2*								

γ(^{146}Sm) (continued)

E_γ [†]	I_γ [†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#j]	α [i]	Comments
1277.55[b] *6*	0.0433 *19*	3361.07	$3^-,4^-$	2083.426	5^-				
1293.48 *13*	0.116 *11*	3376.76	4^+	2083.426	5^-				
1297.028 *16*	5.47 *11*	2678.274	4^+	1381.292	4^+	E2+(M1)	−1.25[@] *25*	0.00175 *8*	ce(K)=2.17 *10* (1976Ad08); α(K)exp=0.00158 *8* α(K)=0.00148 *7*; α(L)=0.000197 *9*; α(M)=4.22×10^{-5} *18* α(N)=9.6×10^{-6} *4*; α(O)=1.43×10^{-6} *7*; α(P)=8.9×10^{-8} *5*; α(IPF)=2.05×10^{-5} *4* δ: the 2nd value of δ=0.15 *5* (1975Si03). E_γ: poor fit; the level energy difference equals 1296.938 *11*.
1303.46 *4*	0.079 *4*	2684.712	(2^+)	1381.292	4^+				
1325.35 *4*	0.090 *3*	2973.34	$3^+,4^+$	1647.980	2^+				
1330.33[&] *20*	0.030 *4*	3376.76	4^+	2045.689	4^-				E_γ: poor fit; the level energy difference equals 1331.06 *4*.
1332.74 *4*	0.193 *7*	3378.43	$(3^-,4,5^-)$	2045.689	4^-	D+Q			
1335.52[a] *9*	0.134 *6*	3418.95	3^+	2083.426	5^-				
1336.01 *9*	0.044 *3*	3605.83	3^-	2269.879	3^+				
1345.176 *22*	0.157 *4*	3626.038	4^+	2280.882	4^+	(M1+E2)		0.0017 *3*	α(K)=0.0014 *3*; α(L)=0.00019 *4*; α(M)=4.0×10^{-5} *7* α(N)=9.2×10^{-6} *16*; α(O)=1.38×10^{-6} *25*; α(P)=8.6×10^{-8} *18*; α(IPF)=3.11×10^{-5} *12* Mult.: D+Q from $\gamma(\theta)$. M1+E2 from decay scheme. δ: $-0.16\le\delta\le1.3$.
1347.79[b] *6*	0.0433 *19*	3431.26	$3^-,4^-$	2083.426	5^-				
1356.145 *17*	0.321 *7*	3626.038	4^+	2269.879	3^+	M1+(E2)	0.05 *+7−8*	0.00196	ce(K)=0.17 *6* (1976Ad08); α(K)exp=0.0013 *5* α(K)=0.001652 *24*; α(L)=0.000218 *4*; α(M)=4.64×10^{-5} *7* α(N)=1.053×10^{-5} *16*; α(O)=1.587×10^{-6} *23*; α(P)=1.017×10^{-7} *15*; α(IPF)=3.51×10^{-5} *5* δ: the 2nd value is −6.9 *+24−79*, at that α(K)=0.001154 *17*.
[x]1362.93 *12*	0.0215 *20*								
1366.69[b] *8*	0.0351 *24*	3014.624	3^+	1647.980	2^+				
1371.33[a] *10*	0.008 *3*	3652.21	4^+	2280.882	4^+				
1373.29[a] *15*	0.014 *5*	3654.18	$(2^+,3,4^+)$	2280.882	4^+				
1373.6[c] *20*		3418.95	3^+	2045.689	4^-				
1378.135 *19*	0.542 *12*	3461.557	5^-	2083.426	5^-	M1+E2	−0.12 *8*	0.00189	ce(K)=0.28 *3* (1969AdZW); α(K)exp=0.0021 *2* α(K)=0.00159 *3*; α(L)=0.000209 *4*; α(M)=4.45×10^{-5} *7* α(N)=1.010×10^{-5} *16*; α(O)=1.524×10^{-6} *24*; α(P)=9.76×10^{-8} *16*; α(IPF)=4.11×10^{-5} *6* δ: the 2nd value is +0.97 *15*, α's are for the 1st value.
1385.60[b] *6*	0.12[h] *7*	3431.26	$3^-,4^-$	2045.689	4^-				
1385.6[g] *3*	0.059[g] *2*	3786.03	$(2^+,3,4^+)$	2400.92	2^+				
[x]1402.20 *19*	0.038 *9*								

From ENSDF

$^{146}_{62}$Sm$_{84}$-15

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#j]	α[i]	Comments
1406.98 *3*	1.75 *4*	2788.223	5^-	1381.292	4^+	(E1)		7.01×10^{-4}	ce(K)=0.21 (1976Ad08); α(K)exp=0.00048 α(K)=0.000481 *7*; α(L)=6.11×10^{-5} *9*; α(M)=1.296×10^{-5} *19* α(N)=2.93×10^{-6} *5*; α(O)=4.41×10^{-7} *7*; α(P)=2.80×10^{-8} *4*; α(IPF)=0.0001418 *20*
1408.66 *3*	1.25 *3*	2155.818	2^+	747.169	2^+	M1+E2		0.0016 *3*	ce(K)=0.7 *1* (1969AdZW); α(K)exp=0.0022 *3* α(K)=0.00129 *23*; α(L)=0.00017 *3*; α(M)=3.6×10^{-5} *6* α(N)=8.3×10^{-6} *14*; α(O)=1.24×10^{-6} *22*; α(P)=7.8×10^{-8} *15*; α(IPF)=4.85×10^{-5} *21* Mult.: possible E0 admixture (1984Kr02). δ: $-3.2\leq\delta\leq-0.9$ (1984Kr02).
1415.859 *21*	0.219 *5*	3461.557	5^-	2045.689	4^-	M1+E2	+0.45 *+7−5*	0.00171 *4*	ce(K)=0.10 *5*; α(K)exp=0.0018 *9* α(K)=0.00142 *3*; α(L)=0.000188 *4*; α(M)=4.00×10^{-5} *8* α(N)=9.07×10^{-6} *18*; α(O)=1.37×10^{-6} *3*; α(P)=8.72×10^{-8} *18*; α(IPF)=5.20×10^{-5} *8* δ: the 2nd value is +3.6 *+8−6*, at that α(K)=0.001084 *22*.
1419.70 *3*	0.131 *5*	3067.705	3^+	1647.980	2^+				
[x]1434.42 *18*	0.0142 *15*								
1445.136 *23*	0.371 *10*	3093.117	3^+	1647.980	2^+	M1+E2		0.00149 *25*	ce(K)=0.14 *4*; K:L:M=0.14 *4*:0.045:0.015 (1965Ba43); α(K)exp=0.0015 *4* α(K)=0.00122 *21*; α(L)=0.00016 *3*; α(M)=3.4×10^{-5} *6* α(N)=7.8×10^{-6} *13*; α(O)=1.17×10^{-6} *20*; α(P)=7.4×10^{-8} *14*; α(IPF)=6.0×10^{-5} *3* I_γ: according to the table 6 of 1995Va40, 1447.12, 1448.21, 1448.1 γ' bring the insignificant contribution to intensity of the 1445.1 transition.
1447.12[a] *9*	0.093 *18*	3530.58	4^+	2083.426	5^-				
1448.1[a] *2*	0.18 *7*	2829.24	(2^+)	1381.292	4^+				
1448.21 *6*	0.093 *3*	3259.924	5^-	1811.694	6^+				
[x]1452.67 *13*	0.0281 *20*								
[x]1458.8[c] *22*									
1469.86 *7*	0.098 *4*	2850.304	4^+	1380.289	3^-				
1470.21[a] *4*	0.020 *6*	3626.038	4^+	2155.818	2^+				
1471.64 *9*	0.069 *3*	3517.37	3^+	2045.689	4^-				
1475.3[b] *3*	0.011 *3*	3123.28	$(2^+,3,4^+)$	1647.980	2^+				
1477.83[a] *17*	0.030 *10*	2224.99	(2^+)	747.169	2^+				
1484.72 *8*	0.082 *4*	3530.58	4^+	2045.689	4^-	E1		7.07×10^{-4}	ce(K)=0.08 *2* (1976Ad08); α(K)exp=0.00039 *10*

$^{146}_{62}$Sm$_{84}$-16

γ(^{146}Sm) (continued)

E_γ [†]	I_γ [†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#j]	α [i]	Comments
									α(K)=0.000439 *7*; α(L)=5.57×10^{-5} *8*; α(M)=1.181×10^{-5} *17* α(N)=2.67×10^{-6} *4*; α(O)=4.02×10^{-7} *6*; α(P)=2.55×10^{-8} *4*; α(IPF)=0.000197 *3*
1488.48 *13*	0.035 *4*	3136.460	3$^-$	1647.980	2$^+$				
1491.16[b] *3*	0.026 *3*	3646.99	(2$^+$,3,4$^+$)	2155.818	2$^+$				
1496.39[b] *10*	0.010[h] *3*	3652.21	4$^+$	2155.818	2$^+$				
1498.35[b] *14*	0.0080[h] *23*	3654.18	(2$^+$,3,4$^+$)	2155.818	2$^+$				
1500.44 *3*	0.128 *4*	3583.924	4$^-$	2083.426	5$^-$	M1+E2		0.00139 *22*	ce(K)=0.06 *3* (1976Ad08); α(K)exp=0.0019 *10* α(K)=0.00113 *19*; α(L)=0.000149 *24*; α(M)=3.2×10^{-5} *5* α(N)=7.2×10^{-6} *12*; α(O)=1.08×10^{-6} *18*; α(P)=6.8×10^{-8} *13*; α(IPF)=7.9×10^{-5} *4*
1517.000 *20*	0.680 *14*	2898.322	5$^+$	1381.292	4$^+$	M1+E2		0.00137 *22*	ce(K)=0.18 *3* (1976Ad08); α(K)exp=0.0011 *3* α(K)=0.00110 *18*; α(L)=0.000145 *23*; α(M)=3.1×10^{-5} *5* α(N)=7.0×10^{-6} *11*; α(O)=1.06×10^{-6} *17*; α(P)=6.7×10^{-8} *12*; α(IPF)=8.5×10^{-5} *4* δ: 1.0 *17* from BriccMixing.
1522.712 *19*	0.897 *19*	2269.879	3$^+$	747.169	2$^+$	M1+E2	1.2[@] *5*	0.00132 *11*	ce(K)=0.19 *3* (1976Ad08); α(K)exp=0.000843 *13* α(K)=0.00106 *10*; α(L)=0.000140 *12*; α(M)=3.0×10^{-5} *3* α(N)=6.8×10^{-6} *6*; α(O)=1.02×10^{-6} *9*; α(P)=6.4×10^{-8} *7*; α(IPF)=8.62×10^{-5} *23* δ: the 2nd value of δ=0.5 *1* (1975Si03).
[x]1530.7[c] *23*									
1533.711 *18*	6.17 *15*	2280.882	4$^+$	747.169	2$^+$	E2		1.14×10^{-3}	ce(K)=1.42 *7* (1976Ad08); α(K)exp=0.000916 *23* α(K)=0.000903 *13*; α(L)=0.0001203 *17*; α(M)=2.57×10^{-5} *4* α(N)=5.81×10^{-6} *9*; α(O)=8.69×10^{-7} *13*; α(P)=5.38×10^{-8} *8*; α(IPF)=8.70×10^{-5} *13*
1535.93[a] *5*	0.176 *15*	3183.924	3$^+$	1647.980	2$^+$				
[x]1537.9 *5*	0.024 *4*								
1542.56 *3*	0.106 *3*	3626.038	4$^+$	2083.426	5$^-$				
1550.98[b] *11*	0.148 *27*	2932.33	(4$^+$)	1381.292	4$^+$				Mult.: for (1551.99γ+1550.98γ) doublet ce(K)=0.039 *8* (1969AdZW).
1551.99[b] *11*	0.097 *32*	2932.33	(4$^+$)	1380.289	3$^-$				Mult.: for (1551.99γ+1550.98γ) doublet ce(K)=0.039 *8* (1969AdZW).
1565.02[b] *20*	≤0.012[h]	3790.06	3$^-$,4$^-$	2224.99	(2$^+$)				
1568.93 *10*	0.038 *5*	3652.21	4$^+$	2083.426	5$^-$				

From ENSDF

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[#j]	α[i]	Comments
1580.16 *18*	0.0128 *17*	3626.038	4^+	2045.689	4^-				
1587.53 *8*	0.011 *7*	2968.83	$2^+,3^+$	1381.292	4^+				
1588.53 *8*	0.014 *7*	2968.83	$2^+,3^+$	1380.289	3^-				
1592.04[b] *6*	0.17[h] *3*	2973.34	$3^+,4^+$	1381.292	4^+	(M1+E2)		0.00127 *19*	ce(K)=0.083 *20*; α(K)exp=0.0019 *8* α(K)=0.00099 *16*; α(L)=0.000131 *20*; α(M)=2.8×10^{-5} *5* α(N)=6.3×10^{-6} *10*; α(O)=9.5×10^{-7} *15*; α(P)=6.0×10^{-8} *11*; α(IPF)=0.000114 *6* α(K)exp: calculated from ce(K)(1592γ+1593γ)=0.10 *2* (1969AdZw) and α(K)(1593γ, E1)=0.000390 *6*.
1593.05[b] *6*	0.17[h] *3*	2973.34	$3^+,4^+$	1380.289	3^-	[E1]		7.31×10^{-4}	α(K)=0.000390 *6*; α(L)=4.94×10^{-5} *7*; α(M)=1.047×10^{-5} *15* α(N)=2.37×10^{-6} *4*; α(O)=3.56×10^{-7} *5*; α(P)=2.27×10^{-8} *4*; α(IPF)=0.000278 *4*
1596.66 *7*	0.099 *4*	3244.65	$(2^+,3,4^+)$	1647.980	2^+				
[x]1605.9[c] *24*									
[x]1619.2[c] *24*									
1633.30 *3*	0.418 *9*	3014.624	3^+	1381.292	4^+	M1		1.40×10^{-3}	ce(K)=0.13 *3* (1976Ad08); α(K)exp=0.0012 *3* α(K)=0.001083 *16*; α(L)=0.0001419 *20*; α(M)=3.02×10^{-5} *5* α(N)=6.86×10^{-6} *10*; α(O)=1.034×10^{-6} *15*; α(P)=6.64×10^{-8} *10*; α(IPF)=0.0001372 *20*
[x]1638.39 *6*	0.0467 *24*								
1648.00 *3*	0.583 *18*	1647.980	2^+	0.0	0^+	E2		1.05×10^{-3}	ce(K)=0.154 *14* (1976Ad08); α(K)exp=0.00075 *7* α(K)=0.000789 *11*; α(L)=0.0001043 *15*; α(M)=2.22×10^{-5} *4* α(N)=5.04×10^{-6} *7*; α(O)=7.54×10^{-7} *11*; α(P)=4.70×10^{-8} *7*; α(IPF)=0.0001308 *19*
1649.76 *10*	0.135 *17*	3461.557	5^-	1811.694	6^+				
1653.72 *8*	0.0573 *20*	2400.92	2^+	747.169	2^+				
1663.42[b] *6*	0.0657 *20*	3475.11	$5^+,(6^+)$	1811.694	6^+	M1+(E2)		0.00120 *16*	ce(K)=0.033 (1965Ad06); α(K)exp=0.0020 α(K)=0.00091 *14*; α(L)=0.000119 *17*; α(M)=2.5×10^{-5} *4* α(N)=5.8×10^{-6} *9*; α(O)=8.7×10^{-7} *13*; α(P)=5.5×10^{-8} *9*; α(IPF)=0.000144 *8*
1667.0 *7*	0.014 *6*	3749.42	$(3^-,4^+)$	2083.426	5^-				
1681.94 *13*	0.0218 *17*	3329.90	$(2^+,3,4^+)$	1647.980	2^+				
1686.397 *21*	0.637 *13*	3067.705	3^+	1381.292	4^+	M1+E2	−0.52 *+7−10*	0.00127 *3*	ce(K)=0.17 *3* (1976Ad08); α(K)exp=0.00106 *18*

$^{146}_{62}Sm_{84}$-18

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#j]	α[i]	Comments
									α(K)=0.000954 *21*; α(L)=0.000125 *3*; α(M)=2.66×10^{-5} *6* α(N)=6.04×10^{-6} *14*; α(O)=9.10×10^{-7} *21*; α(P)=5.82×10^{-8} *14*; α(IPF)=0.0001587 *25* Mult.: from 1984Kr02.
1691.643 *22*	0.419 *9*	3072.932	5$^+$	1381.292	4$^+$	E2+M1	−0.17 *5*	1.32×10^{-3} *2*	ce(K)=0.095 *19* (1968Ha39); α(K)exp=0.00090 *18* α(K)=0.000993 *15*; α(L)=0.0001300 *19*; α(M)=2.77×10^{-5} *4* α(N)=6.28×10^{-6} *10*; α(O)=9.48×10^{-7} *14*; α(P)=6.09×10^{-8} *9*; α(IPF)=0.0001640 *24* δ: the 2nd value of δ=−3.0 *5* corresponds to α(K)=0.000776 *15*. I(ce)=0.09 *3* (1976Ad08).
1711.844 *22*	0.211 *5*	3093.117	3$^+$	1381.292	4$^+$	M1+E2		0.00116 *15*	α(K)=0.00085 *12*; α(L)=0.000112 *16*; α(M)=2.4×10^{-5} *4* α(N)=5.4×10^{-6} *8*; α(O)=8.1×10^{-7} *12*; α(P)=5.2×10^{-8} *8*; α(IPF)=0.000166 *9* ce(K)=0.043 *7* (1969AdZW); α(K)exp=0.00081 *8*.
[x]1716.1[c] *5*									
1724.07 *6*	0.070 *10*	3105.37	(2$^+$,3,4$^+$)	1381.292	4$^+$				
1725.08 *6*	0.060 *10*	3105.37	(2$^+$,3,4$^+$)	1380.289	3$^-$				
1728.76[a] *7*	0.012 *3*	3376.76	4$^+$	1647.980	2$^+$				
1743.69 *3*	0.0378 *18*	3391.673	3$^-$	1647.980	2$^+$				
[x]1746.9[c]									
[x]1754.17 *25*	0.054 *18*								
1756.08 *3*	0.93 *3*	3136.460	3$^-$	1380.289	3$^-$	M1+E2	−0.10 *4*	1.27×10^{-3}	ce(K)=0.20 *2* (1976Ad08); α(K)exp=0.00086 *8* α(K)=0.000918 *13*; α(L)=0.0001200 *17*; α(M)=2.56×10^{-5} *4* α(N)=5.80×10^{-6} *9*; α(O)=8.75×10^{-7} *13*; α(P)=5.62×10^{-8} *8*; α(IPF)=0.000196 *3* δ: the 2nd value is +1.62 *+15−14*, α(K)=0.000761 *4*.
1766.277 *21*	0.678 *14*	2513.414	3$^-$	747.169	2$^+$	E1		7.89×10^{-4}	ce(K)=0.054 *8* (1969AdZW); α(K)exp=0.00032 *5* α(K)=0.000329 *5*; α(L)=4.15×10^{-5} *6*; α(M)=8.80×10^{-6} *13* α(N)=1.99×10^{-6} *3*; α(O)=3.00×10^{-7} *5*; α(P)=1.92×10^{-8} *3*; α(IPF)=0.000407 *6*
1784.762 *13*	0.722 *16*	2531.933	4$^+$	747.169	2$^+$	E2		9.83×10^{-4}	ce(K)=0.12 *2* (1976Ad08); α(K)exp=0.00066 *1* α(K)=0.000680 *10*; α(L)=8.93×10^{-5} *13*; α(M)=1.90×10^{-5} *3* α(N)=4.31×10^{-6} *6*; α(O)=6.46×10^{-7} *9*; α(P)=4.05×10^{-8} *6*; α(IPF)=0.000189 *3*
[x]1793[c] *3*	0.07 *3*								

γ(^{146}Sm) (continued)

E_γ [†]	I_γ [†k]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [i]	Comments
1796.89 *8*	0.0348 *18*	2544.17	(2$^+$)	747.169	2$^+$			
1802.76 *7*	0.156 *8*	3183.924	3$^+$	1381.292	4$^+$	M1+E2	0.00110 *13*	ce(K)=0.072; ce(L)=0.016 (1965Ad06); α(K)exp=0.0018; α(L)exp=0.0004 α(K)=0.00077 *10*; α(L)=0.000100 *13*; α(M)=2.1×10^{-5} *3* α(N)=4.8×10^{-6} *7*; α(O)=7.3×10^{-7} *10*; α(P)=4.6×10^{-8} *7*; α(IPF)=0.000208 *12*
1804.79[b] *24*	0.037[h] *11*	2551.97		747.169	2$^+$			
1818.78 *3*	0.125 *3*	3200.014	4$^-$	1381.292	4$^+$			
1823.90[a] *10*	0.0087 *19*	3471.90	(2$^+$),3$^+$	1647.980	2$^+$			
[x]1833[c] *3*								
1840.52[b] *6*	0.020[h] *8*	3220.85	(3$^-$,4,5$^-$)	1380.289	3$^-$			
1857.33 *5*	0.052 *10*	3238.639	4$^+$	1381.292	4$^+$			
1857.92[a] *5*	0.093 *10*	2605.10		747.169	2$^+$			
1858.34 *5*	0.059 *10*	3238.639	4$^+$	1380.289	3$^-$			
[x]1859.75 *14*	0.046 *3*							
1863.29 *17*	0.0144 *13*	3244.65	(2$^+$,3,4$^+$)	1381.292	4$^+$			
1869.86 *25*	0.0073 *16*	3517.37	3$^+$	1647.980	2$^+$			
1878.62 *3*	0.150 *10*	3259.924	5$^-$	1381.292	4$^+$	E1	8.36×10^{-4}	ce(K)=0.014; α(K)exp=0.00037 α(K)=0.000298 *5*; α(L)=3.75×10^{-5} *6*; α(M)=7.95×10^{-6} *12* α(N)=1.80×10^{-6} *3*; α(O)=2.71×10^{-7} *4*; α(P)=1.733×10^{-8} *25*; α(IPF)=0.000491 *7* α(K)exp: calculated from ce(K)(1878.62γ+1879.63γ)=0.026 (1965Ad06), and α(K)(1879γ, E2)=0.000618.
1879.63 *3*	0.080 *10*	3259.924	5$^-$	1380.289	3$^-$	[E2]	9.53×10^{-4}	α(K)=0.000618 *9*; α(L)=8.09×10^{-5} *12*; α(M)=1.722×10^{-5} *25* α(N)=3.90×10^{-6} *6*; α(O)=5.85×10^{-7} *9*; α(P)=3.68×10^{-8} *6*; α(IPF)=0.000233 *4*
1896.85[b] *19*	0.008 *4*	3278.17	2$^+$	1381.292	4$^+$			for the triplet of 1896.85, 1897.85 and 1898.17 transitions ce(K)=0.0078 *26* (1969AdZW).
1897.85[b] *19*	0.008 *4*	3278.17	2$^+$	1380.289	3$^-$			see comment to 1896.85γ.
1898.17[b] *8*	0.015 *4*	3546.17	2$^+$,3$^+$	1647.980	2$^+$			for the triplet of 1896.85, 1897.85 and 1898.17 transitions ce(K)=0.0078 *26* (1969AdZW).
1902.45 *6*	0.0392 *17*	2649.59	(2$^+$)	747.169	2$^+$			
[x]1917[c] *3*								
1931.087 *20*	1.21 *3*	2678.274	4$^+$	747.169	2$^+$	E2	9.42×10^{-4}	ce(K)=0.130 *13* (1976Ad08); α(K)exp=0.00043 *5* α(K)=0.000588 *9*; α(L)=7.68×10^{-5} *11*; α(M)=1.635×10^{-5} *23* α(N)=3.70×10^{-6} *6*; α(O)=5.56×10^{-7} *8*; α(P)=3.50×10^{-8} *5*; α(IPF)=0.000257 *4* Mult.: for (E2+M3) δ=+0.03 *3* (1984Kr02), δ=0.05 *5* (1975Si03).
1937.57 *11*	0.076 *5*	2684.712	(2$^+$)	747.169	2$^+$			
1944.3 *3*	0.0081 *19*	3591.72	(4$^+$)	1647.980	2$^+$			

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#j]	α[i]	Comments
1948.65 *6*	0.075 *3*	3329.90	(2⁺,3,4⁺)	1381.292	4⁺				
1956.97 *4*	0.124 *3*	3338.27	3⁺	1381.292	4⁺				
[x]1963.01 *10*	0.0183 *13*								
1978.20 *6*	0.0512 *18*	3626.038	4⁺	1647.980	2⁺				
1980.79 *3*	0.148 *6*	3361.07	3⁻,4⁻	1380.289	3⁻	M1		1.13×10^{-3}	ce(K)=0.029 *5* (1969AdZW); α(K)exp=0.00078 *14* α(K)=0.000703 *10*; α(L)=9.16×10^{-5} *13*; α(M)=1.95×10^{-5} *3* α(N)=4.43×10^{-6} *7*; α(O)=6.68×10^{-7} *10*; α(P)=4.30×10^{-8} *6*; α(IPF)=0.000311 *5*
1987.44 *15*	0.012 *7*	3368.75	(4⁺)	1381.292	4⁺				
1988.45 *15*	0.017 *7*	3368.75	(4⁺)	1380.289	3⁻				
1994.0[a] *10*	0.014 *4*	2740.7		747.169	2⁺				
1995.75 *9*	0.291 *11*	3376.76	4⁺	1381.292	4⁺	M1+(E2)		0.00103 *10*	ce(K)=0.07 *2* (1976Ad08); α(K)exp=0.00095 *27* α(K)=0.00062 *7*; α(L)=8.1×10^{-5} *9*; α(M)=1.73×10^{-5} *20* α(N)=3.9×10^{-6} *5*; α(O)=5.9×10^{-7} *7*; α(P)=3.8×10^{-8} *5*; α(IPF)=0.000303 *17* E_γ: poor fit; the level energy difference equals 1995.47 *4*.
1998.00 *15*	0.089 *12*	3378.43	(3⁻,4,5⁻)	1380.289	3⁻				
2004.25 *11*	0.0297 *24*	3652.21	4⁺	1647.980	2⁺				
2010.37 *4*	0.060 *10*	3391.673	3⁻	1381.292	4⁺	[E1]		8.97×10^{-4}	α(K)=0.000267 *4*; α(L)=3.36×10^{-5} *5*; α(M)=7.12×10^{-6} *10* α(N)=1.613×10^{-6} *23*; α(O)=2.43×10^{-7} *4*; α(P)=1.556×10^{-8} *22*; α(IPF)=0.000587 *9*
2011.38 *4*	0.140 *10*	3391.673	3⁻	1380.289	3⁻	M1+E2		0.00103 *10*	ce(K)=0.022 *5*; α(K)exp=0.00063 *15* α(K)=0.00061 *7*; α(L)=8.0×10^{-5} *9*; α(M)=1.70×10^{-5} *19* α(N)=3.9×10^{-6} *5*; α(O)=5.8×10^{-7} *7*; α(P)=3.7×10^{-8} *5*; α(IPF)=0.000311 *18* α(K)exp: calculated from ce(K)(2010.37γ+2011.38γ)=0.026 *5* (1969AdZW), and α(K)(2010.37γ, E1)=0.000267 *4*.
2017.40 *13*	0.0233 *17*	3397.60	(4⁺)	1380.289	3⁻				
[x]2032.15 *21*	0.0087 *13*								
2037.86 *7*	0.0728 *24*	3418.95	3⁺	1381.292	4⁺				ce(K)=0.023 *8* (1969AdZW); α(K)exp=0.0013 *5* α(exp): no explanation for the large value of the α(K)exp.
2049.96[b] *8*	0.028 *4*	3431.26	3⁻,4⁻	1381.292	4⁺				
2050.97[b] *8*	0.116 *15*	3431.26	3⁻,4⁻	1380.289	3⁻				

$^{146}_{62}Sm_{84}$-21

γ(^{146}Sm) (continued)

E_γ [†]	I_γ [†k]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [#j]	α [i]	Comments
2052.71 *5*	0.673 *23*	2799.93	3$^+$	747.169	2$^+$	M1+E2	+0.501 *+25−23*	1.07×10^{-3} *2*	ce(K)=0.12 *2*; α(K)exp=0.00071 *12* α(K)=0.000625 *9*; α(L)=8.14×10^{-5} *12*; α(M)=1.732×10^{-5} *25* α(N)=3.93×10^{-6} *6*; α(O)=5.92×10^{-7} *9*; α(P)=3.80×10^{-8} *6*; α(IPF)=0.000343 *5* δ: the 2nd value is +4.4 *+5−3*, at that α(K)=0.000532 *8*.
2072.50 *15*	0.0076 *9*	3720.53	3$^-$	1647.980	2$^+$				
2080.02 *15*	0.66 *26*	3461.557	5$^-$	1381.292	4$^+$	[E1]		9.29×10^{-4}	α(K)=0.000253 *4*; α(L)=3.18×10^{-5} *5*; α(M)=6.74×10^{-6} *10* α(N)=1.527×10^{-6} *22*; α(O)=2.30×10^{-7} *4*; α(P)=1.474×10^{-8} *21*; α(IPF)=0.000636 *9* Mult.: from reanalyzed data of 1984Kr02 by 1992Ad04.
2081.11 *15*	1.51 *26*	3461.557	5$^-$	1380.289	3$^-$	E2		9.25×10^{-4}	ce(K)=0.180 *24*; α(K)exp=0.00047 *10* α(K)=0.000513 *8*; α(L)=6.67×10^{-5} *10*; α(M)=1.419×10^{-5} *20* α(N)=3.21×10^{-6} *5*; α(O)=4.83×10^{-7} *7*; α(P)=3.06×10^{-8} *5*; α(IPF)=0.000328 *5* α(K)exp: calculated from ce(K)(2080.02γ+2081.11γ)=0.222 *17* (1976Ad08), and α(K)(2080.02γ, E1)=0.000253 *4*.
2081.7 [a] *3*	≈0.1	2829.24	(2$^+$)	747.169	2$^+$				
2095.64 [b] *20*	0.023 *3*	3476.95	(2$^+$,3,4,5$^-$)	1381.292	4$^+$				
2096.64 [b] *20*	0.023 *3*	3476.95	(2$^+$,3,4,5$^-$)	1380.289	3$^-$				
2103.16 *5*	0.075 *3*	2850.304	4$^+$	747.169	2$^+$	E2		9.25×10^{-4}	α(K)=0.000504 *7*; α(L)=6.54×10^{-5} *10*; α(M)=1.391×10^{-5} *20* α(N)=3.15×10^{-6} *5*; α(O)=4.73×10^{-7} *7*; α(P)=3.00×10^{-8} *5*; α(IPF)=0.000338 *5* Mult.: from $\gamma(\theta)$.
[x]2113.62 *5*	0.0106 *7*								
2132.09 *10*	0.0238 *11*	2879.11		747.169	2$^+$				
2137.08 *4*	0.120 *3*	3517.37	3$^+$	1380.289	3$^-$	E1+(M2)		9.64×10^{-4} *16*	ce(K)=0.0130 *26* (1969AdZW); α(K)exp=0.00043 *9* α(K)=0.000253 *11*; α(L)=3.19×10^{-5} *15*; α(M)=6.8×10^{-6} *4* α(N)=1.53×10^{-6} *7*; α(O)=2.30×10^{-7} *11*; α(P)=1.48×10^{-8} *7*; α(IPF)=0.000670 *11* Mult.,δ: from reanalyzed data of 1984Kr02 by 1992Ad04; −0.18≤δ≤+2.0 in this case 0.000259 *17*≤α(K)≤0.0007 *5*.

γ(^{146}Sm) (continued)

E_γ [†]	I_γ [†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	α [i]	Comments
2149.2 *3*	0.030 *10*	3530.58	4^+	1381.292	4^+			
2155.76 *3*	0.529 *12*	2155.818	2^+	0.0	0^+	E2	9.24×10^{-4}	ce(K)=0.076 *17* (1969AdZW); α(K)exp=0.00057 *13* α(K)=0.000482 *7*; α(L)=6.24×10^{-5} *9*; α(M)=1.328×10^{-5} *19* α(N)=3.01×10^{-6} *5*; α(O)=4.52×10^{-7} *7*; α(P)=2.87×10^{-8} *4*; α(IPF)=0.000363 *5*
2158.92[a] *13*	0.0052 *22*	2905.98	(4^+)	747.169	2^+			
2164.86 *5*	0.0552 *16*	3546.17	$2^+,3^+$	1381.292	4^+			
^{x}2178[c] *3*								
^{x}2189.3[c] *3*								
^{x}2193.2 *5*	0.0018 *16*							
^{x}2196.3 *4*	0.0051 *14*							
2203.73[&] *3*	0.174 *4*	3583.924	4^-	1380.289	3^-	M1+E2	0.00100 *8*	ce(K)=0.024 *3* (1969AdZW); α(K)exp=0.00055 *7* α(K)=0.00051 *5*; α(L)=6.6×10^{-5} *7*; α(M)=1.41×10^{-5} *14* α(N)=3.2×10^{-6} *3*; α(O)=4.8×10^{-7} *5*; α(P)=3.1×10^{-8} *4*; α(IPF)=0.000409 *24* δ: +1.4 *+4−3* or −0.04 *+11−10* for J=3^-, and +4.6 *+19−12* or +0.43 *+8−9* for J=4^-. E_γ: poor fit; the level energy difference equals 2203.53 *3*.
2210.35 *6*	0.0599 *22*	3591.72	(4^+)	1381.292	4^+			
^{x}2213.4 *5*	0.0065 *14*							
2221.64 *5*	0.094 *4*	2968.83	$2^+,3^+$	747.169	2^+	M1	1.08×10^{-3}	ce(K)=0.0170 *26* (1969AdZW); α(K)exp=0.00072 *11* α(K)=0.000547 *8*; α(L)=7.10×10^{-5} *10*; α(M)=1.511×10^{-5} *22* α(N)=3.43×10^{-6} *5*; α(O)=5.17×10^{-7} *8*; α(P)=3.34×10^{-8} *5*; α(IPF)=0.000441 *7*
2224.98[b] *15*	0.052 *3*	2224.99	(2^+)	0.0	0^+			
2227.2[b] *4*	≈0.01[h]	2974.39	3^-	747.169	2^+			
2244.71 *4*	0.161 *4*	3626.038	4^+	1381.292	4^+	M1+E2	0.00100 *8*	ce(K)=0.038 *4* (1976Ad08); α(K)exp=0.00084 *11* α(K)=0.00049 *5*; α(L)=6.4×10^{-5} *6*; α(M)=1.35×10^{-5} *13* α(N)=3.1×10^{-6} *3*; α(O)=4.6×10^{-7} *5*; α(P)=3.0×10^{-8} *3*; α(IPF)=0.000430 *25* Mult.,δ: from reanalyzed data of 1984Kr02 by 1992Ad04; $-28\le\delta\le-1.1$.
2267.49 *4*	0.444 *12*	3014.624	3^+	747.169	2^+	M1	1.08×10^{-3}	ce(K)=0.068 *5* (1976Ad08); α(K)exp=0.00061 *5* α(K)=0.000523 *8*; α(L)=6.78×10^{-5} *10*; α(M)=1.444×10^{-5} *21* α(N)=3.28×10^{-6} *5*; α(O)=4.94×10^{-7} *7*; α(P)=3.19×10^{-8} *5*; α(IPF)=0.000466 *7*
2273.4[a] *15*	0.048 *5*	3020.6	0^+	747.169	2^+			
^{x}2279.59 *22*	0.0055 *14*							
^{x}2300.4 *4*	0.0038 *10*							
2310.81 *8*	0.0208 *10*	3058.08		747.169	2^+			
2320.54 *4*	0.0970 *23*	3067.705	3^+	747.169	2^+	M1+E2	0.00100 *8*	ce(K)=0.017 *4* (1976Ad08); α(K)exp=0.00049 *12* α(K)=0.00046 *4*; α(L)=5.9×10^{-5} *5*; α(M)=1.26×10^{-5} *11*

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[#j]	α[i]	Comments
									α(N)=2.87×10^{-6} *25*; α(O)=4.3×10^{-7} *4*; α(P)=2.8×10^{-8} *3*; α(IPF)=0.00047 *3*
2345.91 *30*	0.400 *9*	3093.117	3$^+$	747.169	2$^+$	M1+E2		0.00100 *7*	ce(K)=0.054 *5* (1976Ad08); α(K)exp=0.00054 *5* α(K)=0.00045 *4*; α(L)=5.8×10^{-5} *5*; α(M)=1.24×10^{-5} *11* α(N)=2.81×10^{-6} *24*; α(O)=4.2×10^{-7} *4*; α(P)=2.7×10^{-8} *3*; α(IPF)=0.00048 *3*
2358.17 *13*	0.0305 *18*	3105.37	(2$^+$,3,4$^+$)	747.169	2$^+$				
2360.49 *14*	0.0299 *18*	3740.77	(3,4$^+$)	1380.289	3$^-$				
2368.93 *22*	0.0078 *9*	3749.42	(3$^-$,4$^+$)	1380.289	3$^-$				
[x]2379.90 *20*	0.0093 *11*								
2389.00[b] *17*	0.057[h] *1*	3770.33	2$^+$	1381.292	4$^+$				
2389.13 *4*	0.156[h] *6*	3136.460	3$^-$	747.169	2$^+$	E1+M2	−0.05 *+4−5*	1.08×10^{-3} *2*	ce(K)=0.019 *2* (1976Ad08); α(K)exp=0.0035 *4* α(K)=0.000206 *7*; α(L)=2.58×10^{-5} *9*; α(M)=5.47×10^{-6} *19* α(N)=1.24×10^{-6} *5*; α(O)=1.87×10^{-7} *7*; α(P)=1.20×10^{-8} *4*; α(IPF)=0.000840 *13* α(K)exp: Excess of experimental value above calculated, apparently, is caused by the contribution to a conversion line of a doublet 2389.00γ, Iγ=0.057. E_γ: poor fit; the level energy difference equals 2389.283 *18*.
2400.94 *4*	0.245 *8*	2400.92	2$^+$	0.0	0$^+$	E2		9.42×10^{-4}	ce(K)=0.031 *3* (1976Ad08); α(K)exp=0.00050 *5* α(K)=0.000397 *6*; α(L)=5.12×10^{-5} *8*; α(M)=1.087×10^{-5} *16* α(N)=2.46×10^{-6} *4*; α(O)=3.71×10^{-7} *6*; α(P)=2.36×10^{-8} *4*; α(IPF)=0.000480 *7*
2404.74 *22*	0.0126 *11*	3786.03	(2$^+$,3,4$^+$)	1381.292	4$^+$				
2436.74 *4*	0.946 *20*	3183.924	3$^+$	747.169	2$^+$	M1+E2	0.35[@] *10*	1.06×10^{-3} *2*	ce(K)=0.114; ce(L)=0.016 (1965Ad06); α(K)exp=0.00048; α(L)exp=0.000067 α(K)=0.000441 *8*; α(L)=5.70×10^{-5} *10*; α(M)=1.214×10^{-5} *20* α(N)=2.75×10^{-6} *5*; α(O)=4.15×10^{-7} *7*; α(P)=2.68×10^{-8} *5*; α(IPF)=0.000551 *9* δ: the 2nd value of δ=1.75 *50* (1975Si03).
2484.39 *8*	0.0202 *8*	3231.63	4$^+$	747.169	2$^+$				
2491.51 *4*	0.182 *5*	3238.639	4$^+$	747.169	2$^+$	E2		9.55×10^{-4}	ce(K)=0.026 *3* (1976Ad08); α(K)exp=0.00057 *6* α(K)=0.000372 *6*; α(L)=4.78×10^{-5} *7*; α(M)=1.016×10^{-5} *15*

$^{146}_{62}Sm_{84}$-24

γ(^{146}Sm) (continued)

E_γ †	I_γ †k	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	α i	Comments
								α(N)=2.30×10^{-6} *4*; α(O)=3.46×10^{-7} *5*; α(P)=2.21×10^{-8} *3*; α(IPF)=0.000523 *8*
2497.46 *5*	0.0632 *17*	3244.65	(2$^+$,3,4$^+$)	747.169	2$^+$			
2544.21 *6*	0.0492 *15*	2544.17	(2$^+$)	0.0	0$^+$	E2	9.64×10^{-4}	ce(K)=0.0052 *8* (1976Ad08); α(K)exp=0.00042 *7* α(K)=0.000358 *5*; α(L)=4.60×10^{-5} *7*; α(M)=9.78×10^{-6} *14* α(N)=2.22×10^{-6} *4*; α(O)=3.34×10^{-7} *5*; α(P)=2.13×10^{-8} *3*; α(IPF)=0.000547 *8*
2582.51 *11*	0.0099 *7*	3329.90	(2$^+$,3,4$^+$)	747.169	2$^+$			
2591.11 *8*	0.0192 *6*	3338.27	3$^+$	747.169	2$^+$	M1+(E2)	0.00103 *7*	ce(K)=0.0026 *8* (1976Ad08); α(K)exp=0.00054 *16* α(K)=0.000369 *24*; α(L)=4.8×10^{-5} *4*; α(M)=1.01×10^{-5} *7* α(N)=2.29×10^{-6} *16*; α(O)=3.46×10^{-7} *24*; α(P)=2.22×10^{-8} *17*; α(IPF)=0.00060 *4*
2621.56 *11*	0.0097 *6*	3368.75	(4$^+$)	747.169	2$^+$			
2629.50 *5*	0.0665 *17*	3376.76	4$^+$	747.169	2$^+$	E2	9.80×10^{-4}	ce(K)=0.0089 *13* (1976Ad08); α(K)exp=0.00041 *6* α(K)=0.000338 *5*; α(L)=4.34×10^{-5} *6*; α(M)=9.21×10^{-6} *13* α(N)=2.09×10^{-6} *3*; α(O)=3.14×10^{-7} *5*; α(P)=2.01×10^{-8} *3*; α(IPF)=0.000587 *9*
2644.43 *5*	0.108 *3*	3391.673	3$^-$	747.169	2$^+$	E1	1.20×10^{-3}	ce(K)=0.0057 *21* (1976Ad08); α(K)exp=0.00021 *8* α(K)=0.0001750 *25*; α(L)=2.19×10^{-5} *3*; α(M)=4.63×10^{-6} *7* α(N)=1.049×10^{-6} *15*; α(O)=1.580×10^{-7} *23*; α(P)=1.019×10^{-8} *15*; α(IPF)=0.000996 *14*
2650.35 l&n *17*	0.0078 l *6*	2649.59	(2$^+$)	0.0	0$^+$			E_γ: doublet line, poor fit; the level energy difference equals 2649.56 *6*. The γ ray is placed from 3397.65 keV level also.
2650.35 l *17*	0.0078 l *6*	3397.60	(4$^+$)	747.169	2$^+$			
2671.65 *5*	0.0397 *11*	3418.95	3$^+$	747.169	2$^+$	M1+E2	0.00105 *7*	ce(K)=0.06 (1965Ad06); α(K)exp=0.0006 α(K)=0.000348 *20*; α(L)=4.5×10^{-5} *3*; α(M)=9.5×10^{-6} *6* α(N)=2.16×10^{-6} *14*; α(O)=3.25×10^{-7} *21*; α(P)=2.09×10^{-8} *15*; α(IPF)=0.00064 *4* δ: −0.21 +*8*−*9* or −2.1 +*4*−*5*, α's are for the 1st value.
2680.57 *7*	0.0178 *6*	3427.76		747.169	2$^+$			
^{x}2711.8 *21*	0.013							
2724.70 *6*	0.0308 *10*	3471.90	(2$^+$),3$^+$	747.169	2$^+$	M1	1.12×10^{-3}	ce(K)=0.0028 *8* (1976Ad08); α(K)exp=0.00036 *10* α(K)=0.000352 *5*; α(L)=4.55×10^{-5} *7*; α(M)=9.67×10^{-6} *14* α(N)=2.19×10^{-6} *3*; α(O)=3.31×10^{-7} *5*; α(P)=2.14×10^{-8} *3*; α(IPF)=0.000709 *10*
^{x}2740.8 *3*	0.0013 *2*							
2762.04 *8*	0.0146 *6*	3509.34	(3$^+$)	747.169	2$^+$	(M1+E2)	0.00107 *7*	ce(K)=0.0010 *3* (1976Ad08); α(K)exp=0.00027 *8* α(K)=0.000326 *17*; α(L)=4.19×10^{-5} *24*; α(M)=8.9×10^{-6} *5* α(N)=2.02×10^{-6} *12*; α(O)=3.05×10^{-7} *18*; α(P)=1.96×10^{-8} *13*; α(IPF)=0.00069 *5*
2770.12 *8*	0.0192 *7*	3517.37	3$^+$	747.169	2$^+$	M1+E2	0.00107 *7*	ce(K)=0.0018 *5* (1976Ad08); α(K)exp=0.00037 *10*

From ENSDF

γ(^{146}Sm) (continued)

E_γ[†]	I_γ[†k]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	α[i]	Comments
								α(K)=0.000324 *17*; α(L)=4.17×10^{-5} *23*; α(M)=8.9×10^{-6} *5* α(N)=2.01×10^{-6} *12*; α(O)=3.03×10^{-7} *18*; α(P)=1.95×10^{-8} *12*; α(IPF)=0.00069 *5*
2798.97 *6*	0.0357 *11*	3546.17	2$^+$,3$^+$	747.169	2$^+$	M1+E2	0.00107 *7*	ce(K)=0.0026 *8* (1976Ad08); α(K)exp=0.00029 *7* α(K)=0.000318 *16*; α(L)=4.08×10^{-5} *22*; α(M)=8.7×10^{-6} *5* α(N)=1.97×10^{-6} *11*; α(O)=2.97×10^{-7} *17*; α(P)=1.91×10^{-8} *12*; α(IPF)=0.00071 *5*
2845.0 *3*	0.0010 *3*	3591.72	(4$^+$)	747.169	2$^+$			
^{x}2851.0 *3*	0.0011 *2*							
2858.2 *3*	0.0020 *5*	3605.83	3$^-$	747.169	2$^+$			
^{x}2860.4 *4*	0.0012 *4*							
2878.76 *10*	0.0065 *5*	3626.038	4$^+$	747.169	2$^+$			
2904.87 *9*	0.0393 *24*	3652.21	4$^+$	747.169	2$^+$	E2	1.04×10^{-3}	ce(K)=0.0041 *8* (1976Ad08); α(K)exp=0.00042 *9* α(K)=0.000284 *4*; α(L)=3.63×10^{-5} *5*; α(M)=7.70×10^{-6} *11* α(N)=1.745×10^{-6} *25*; α(O)=2.63×10^{-7} *4*; α(P)=1.687×10^{-8} *24*; α(IPF)=0.000711 *10*
2906.99[b] *13*	0.0154[h] *22*	3654.18	(2$^+$,3,4$^+$)	747.169	2$^+$			
2946.10 *10*	0.0082 *9*	3693.43	(2$^+$,3,4$^+$)	747.169	2$^+$			
2968.41 *18*	0.0029 *2*	3715.61		747.169	2$^+$			
2973.3 *4*	0.0008 *2*	3720.53	3$^-$	747.169	2$^+$			
2993.61 *24*	0.0020 *2*	3740.77	(3,4$^+$)	747.169	2$^+$			
3002.24 *12*	0.0062 *3*	3749.42	(3$^-$,4$^+$)	747.169	2$^+$			
3038.50 *23*	0.0009 *1*	3786.03	(2$^+$,3,4$^+$)	747.169	2$^+$			
3042.85[a] *8*	0.0026 *5*	3790.06	3$^-$,4$^-$	747.169	2$^+$			
^{x}3082.0 *5*	0.0006 *2*							

† From 1992Ad04, except where noted otherwise. Iγ and I(ce) data are normalized to 747.2γ. Iγ=2.45 for the doublet of 1551γ and 1552γ from the 2932 keV level divided by evaluators using data from (α,xγ) reaction.

‡ From α(K)exp, γ(θ) from oriented nuclei.

\# From 1992Ad04 except as noted; data from 1984Kr02 were reanalyzed by 1992Ad04 because of changes in decay scheme and values of J^π. For details see 1992Ad04.

@ From γγ(θ) of 1975Si03.

& Not taken in to account in a least-squares fitting.

a Transition reported by 1995Va40.

b Placement from 1995Va40. Unplaced (or placed elsewhere) in 1992Ad04.

c Observed only by 1968Ha39.

d Observed only by 1988Sa06.

e Placed by the evaluators from unplaced γ′s.

γ(^{146}Sm) (continued)

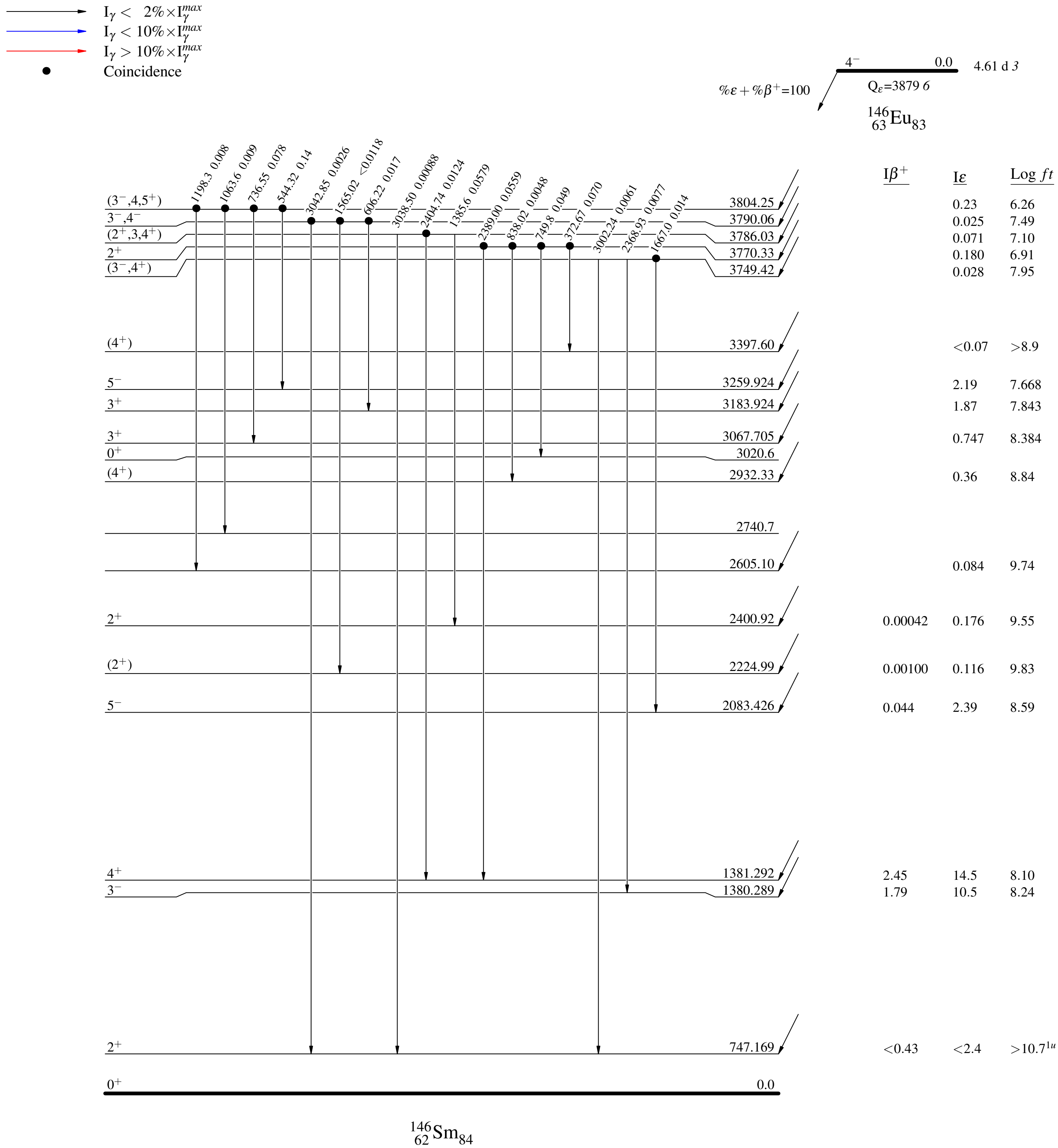
[f] From L1/K ratio (1968Ha39).
[g] From 1993GrZX.
[h] From 1995Va40.
[i] Additional information 1.
[j] If No value given it was assumed δ=1.00 for E2/M1 and δ=0.10 for the other multipolarities.
[k] For absolute intensity per 100 decays, multiply by 0.981 *19*.
[l] Multiply placed with undivided intensity.
[m] Multiply placed with intensity suitably divided.
[n] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{146}_{62}Sm_{84}$-27

^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme

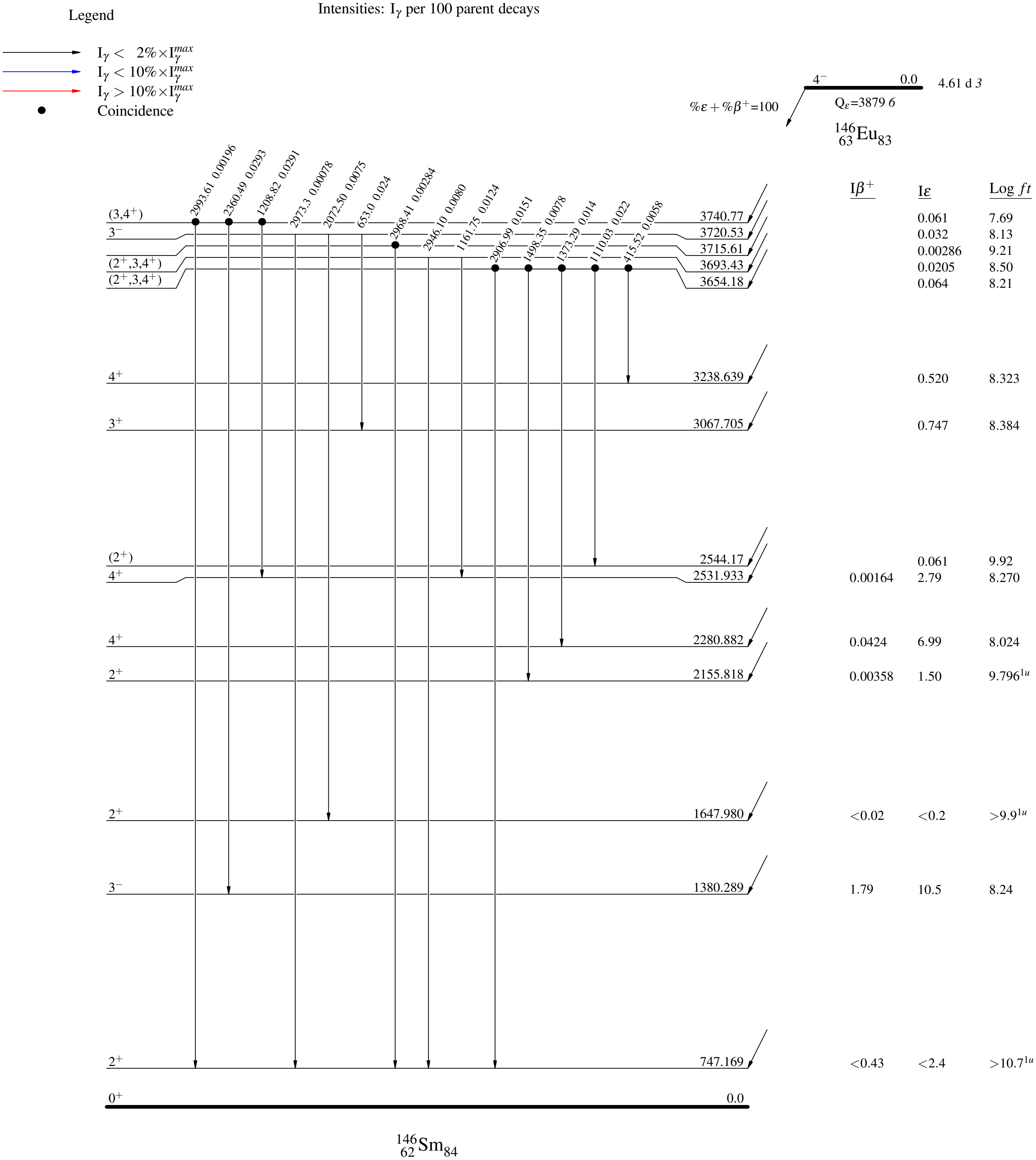
Intensities: I_γ per 100 parent decays



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays

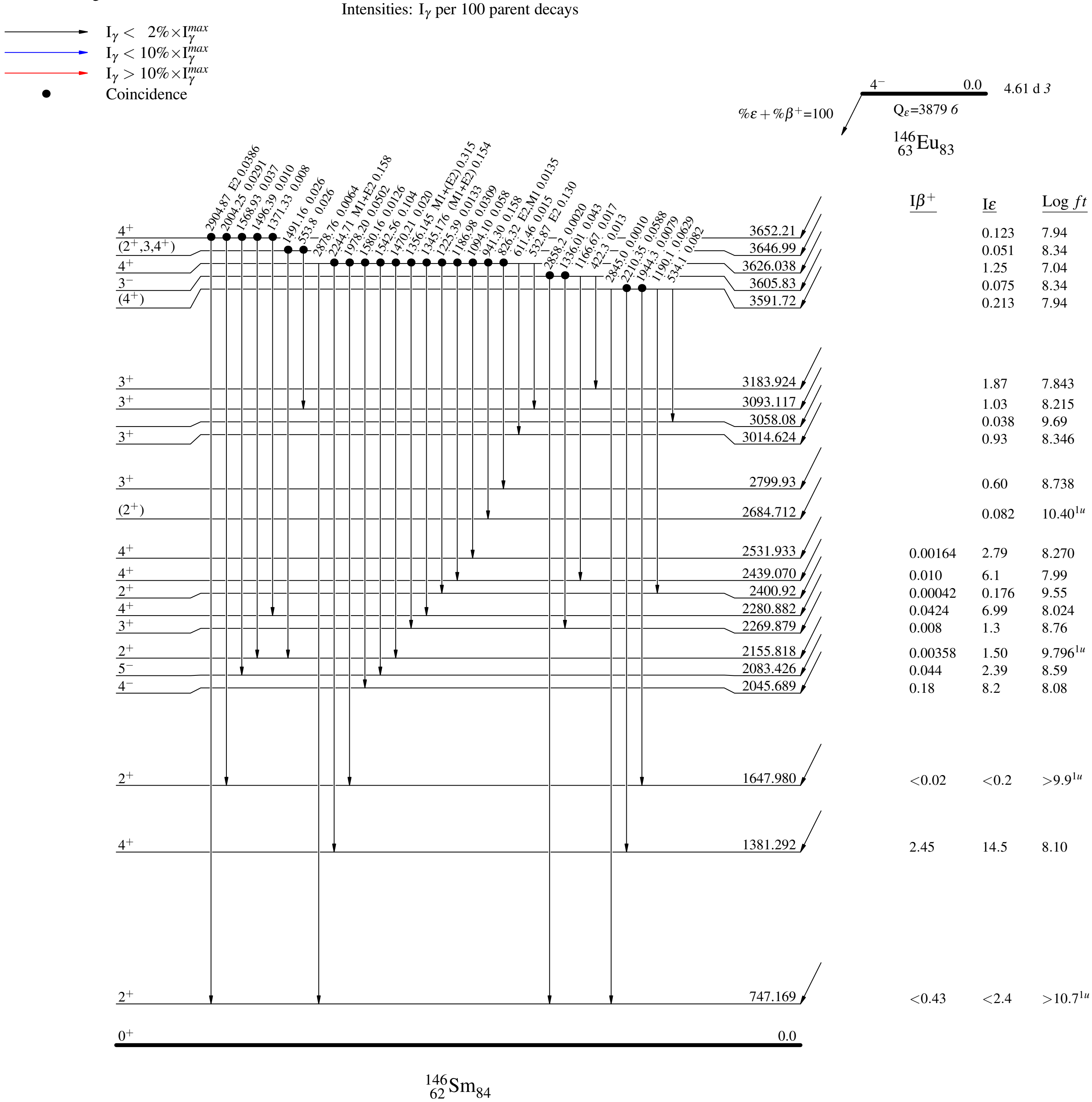


^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays

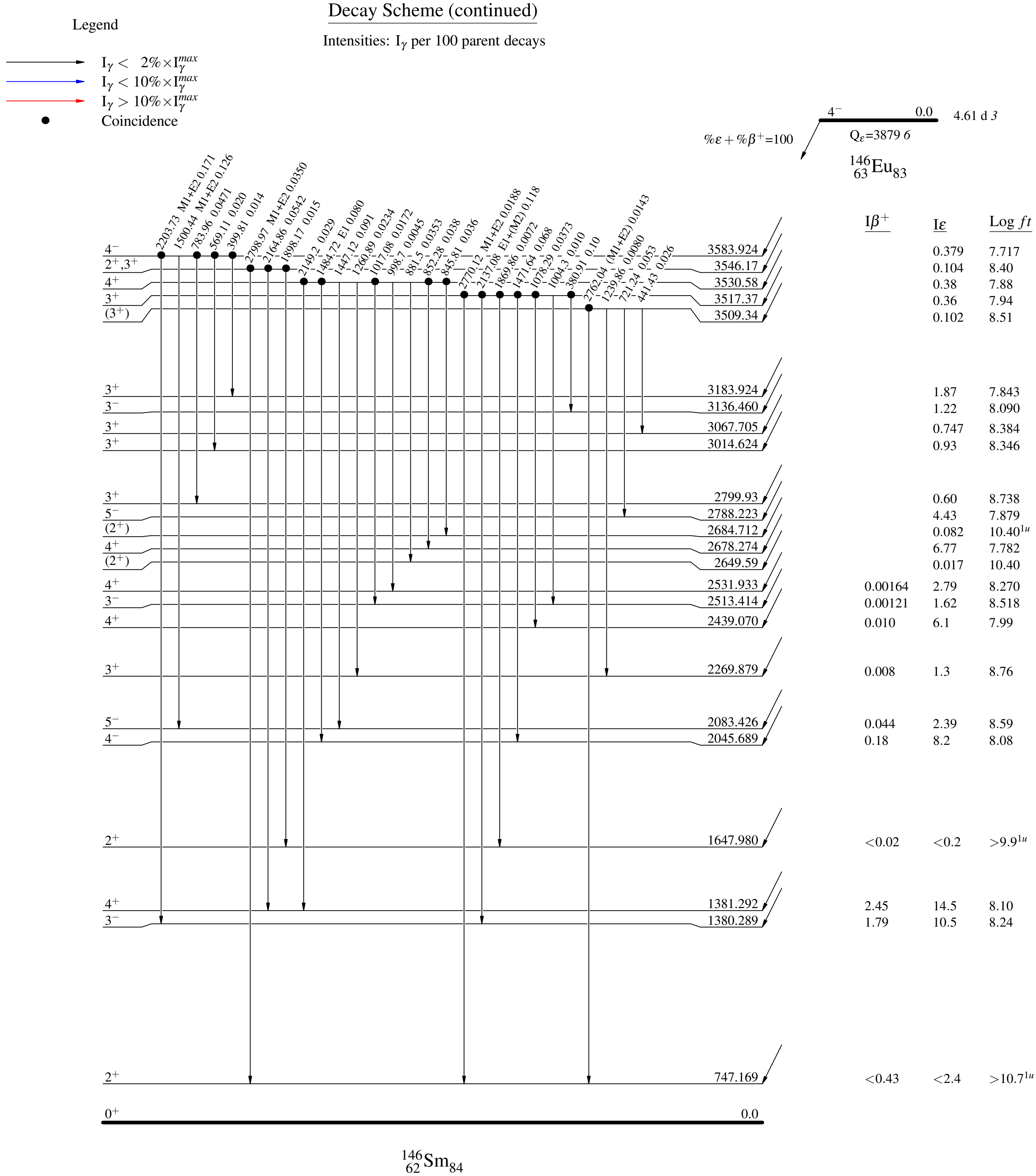
Legend



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

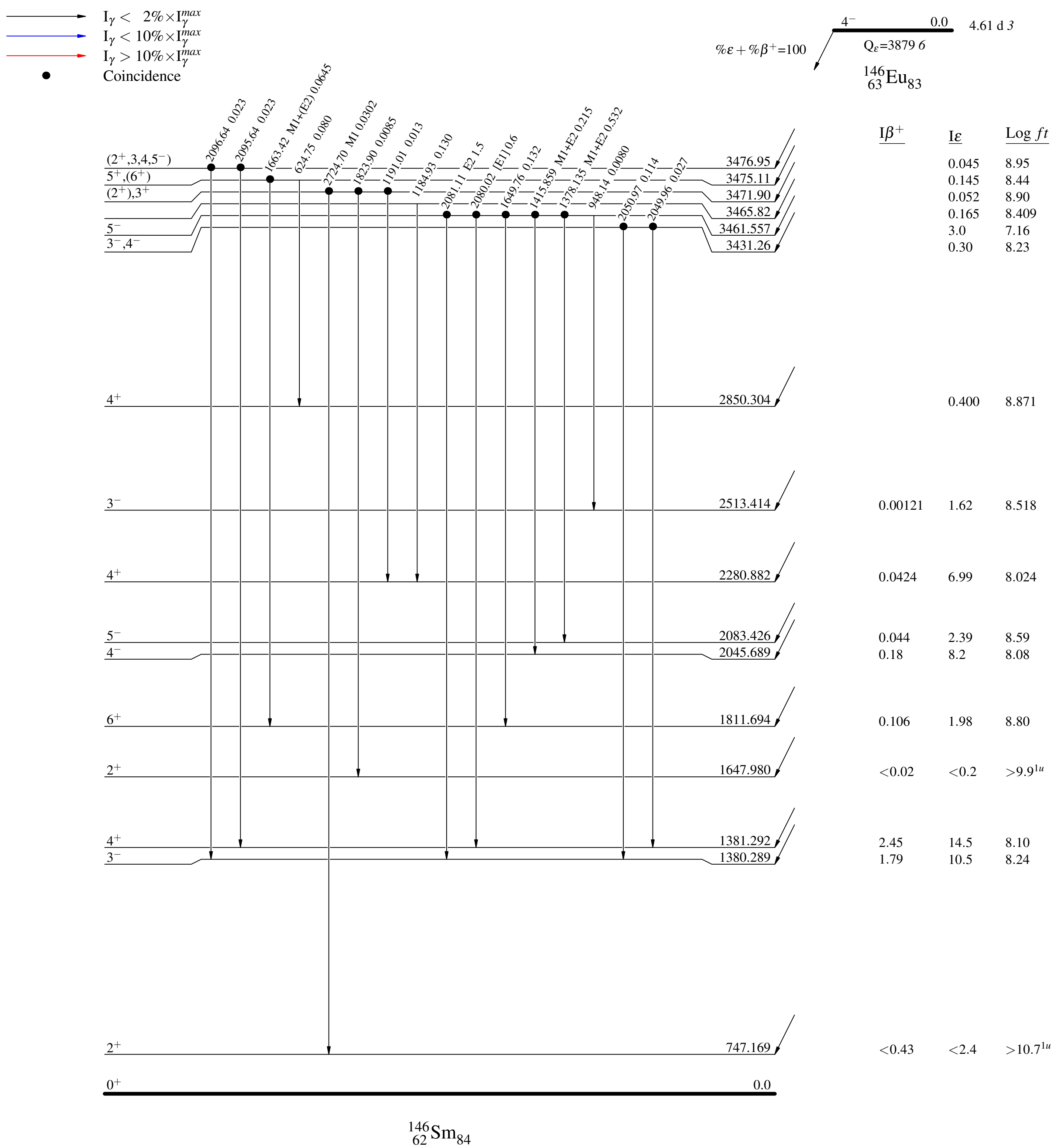
Intensities: I_γ per 100 parent decays



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

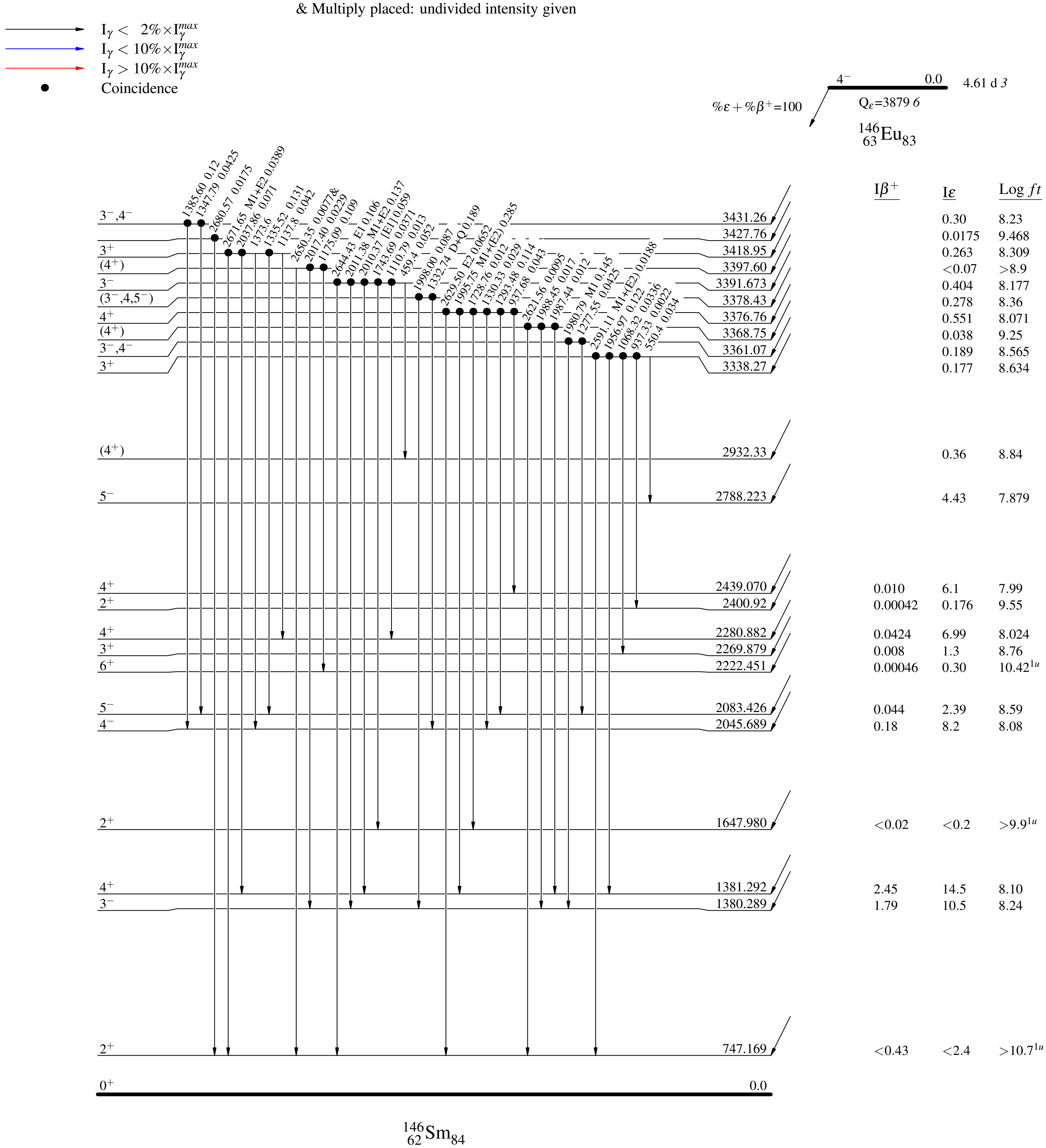
Intensities: I_γ per 100 parent decays



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

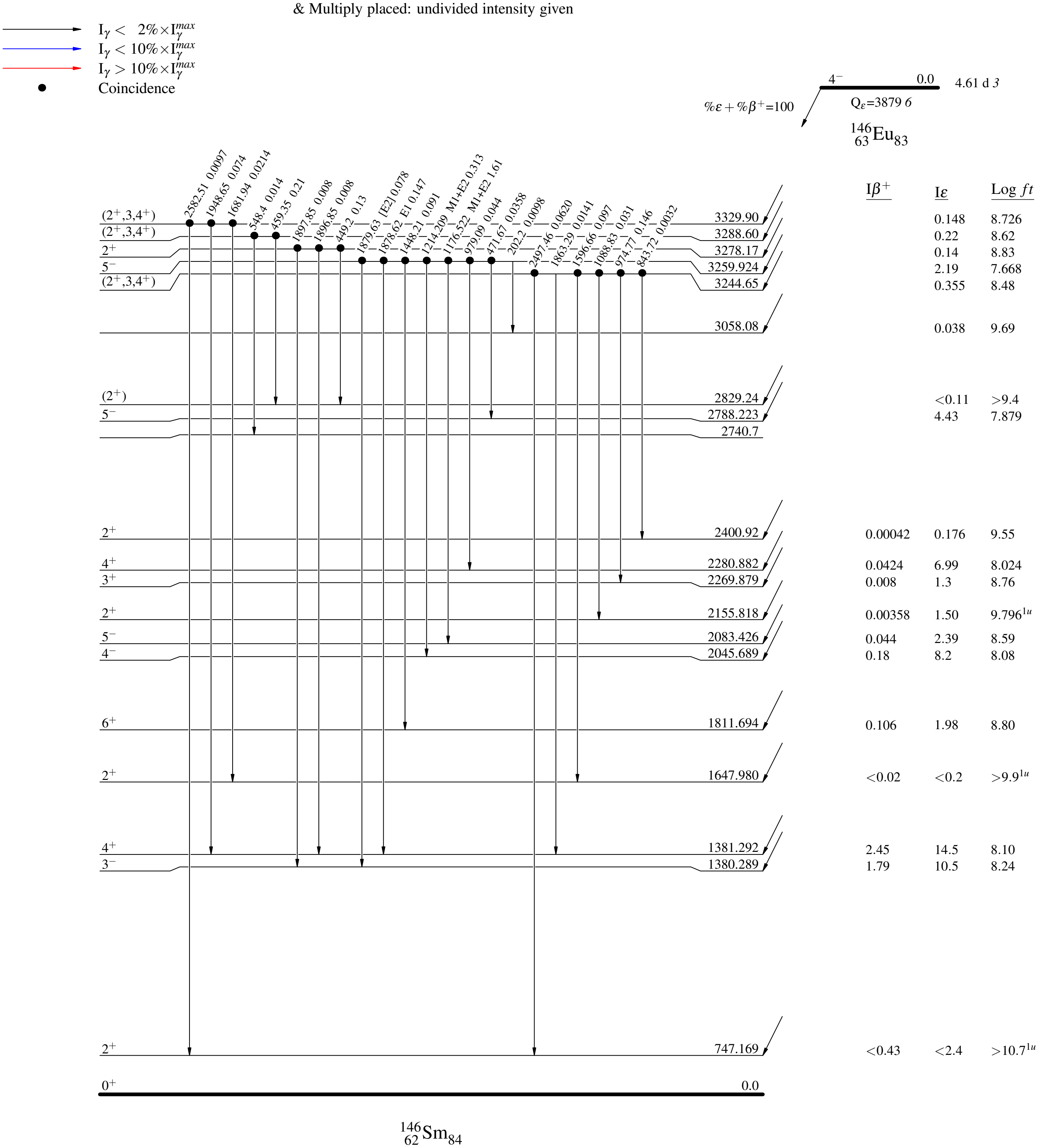
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

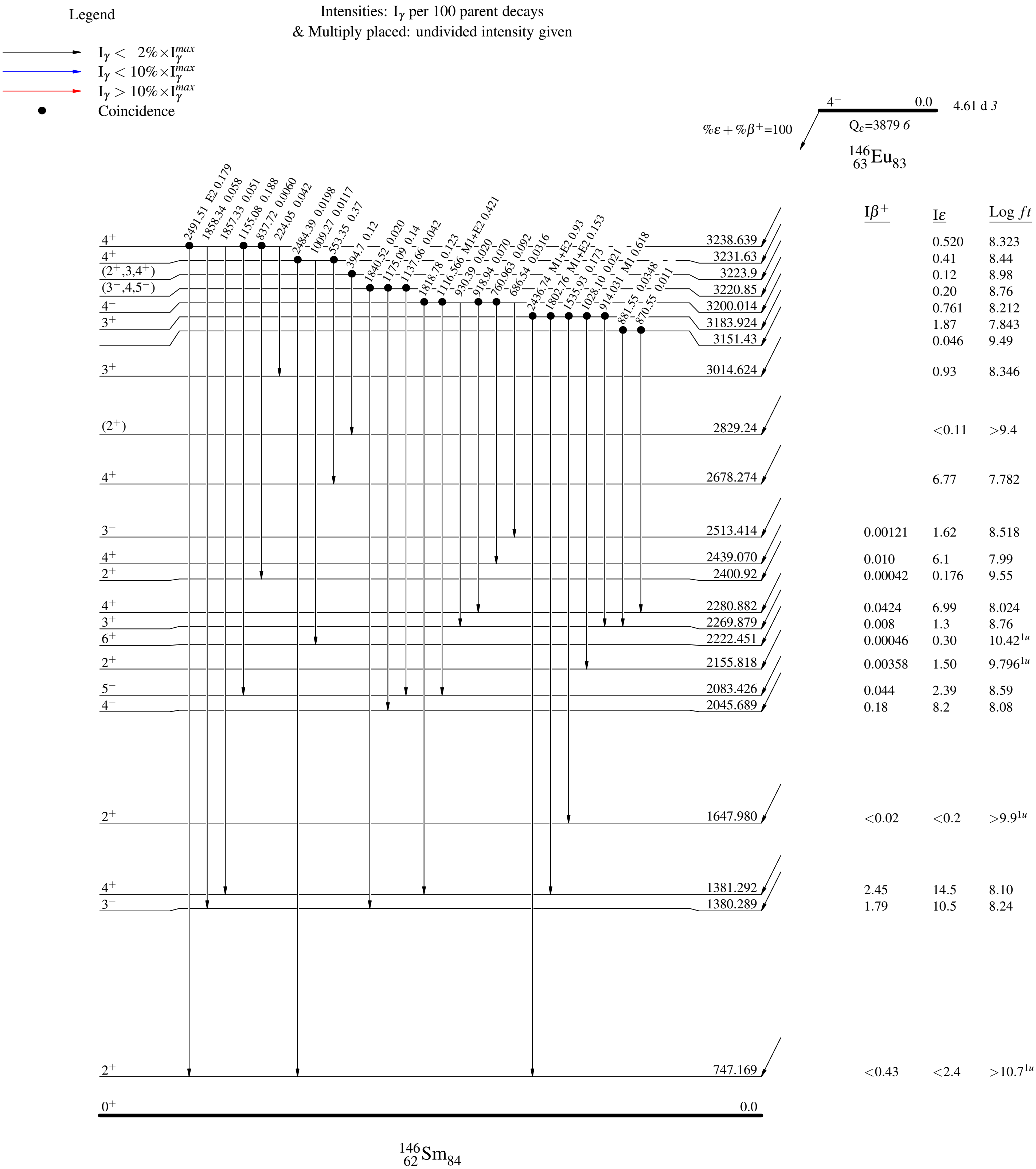
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

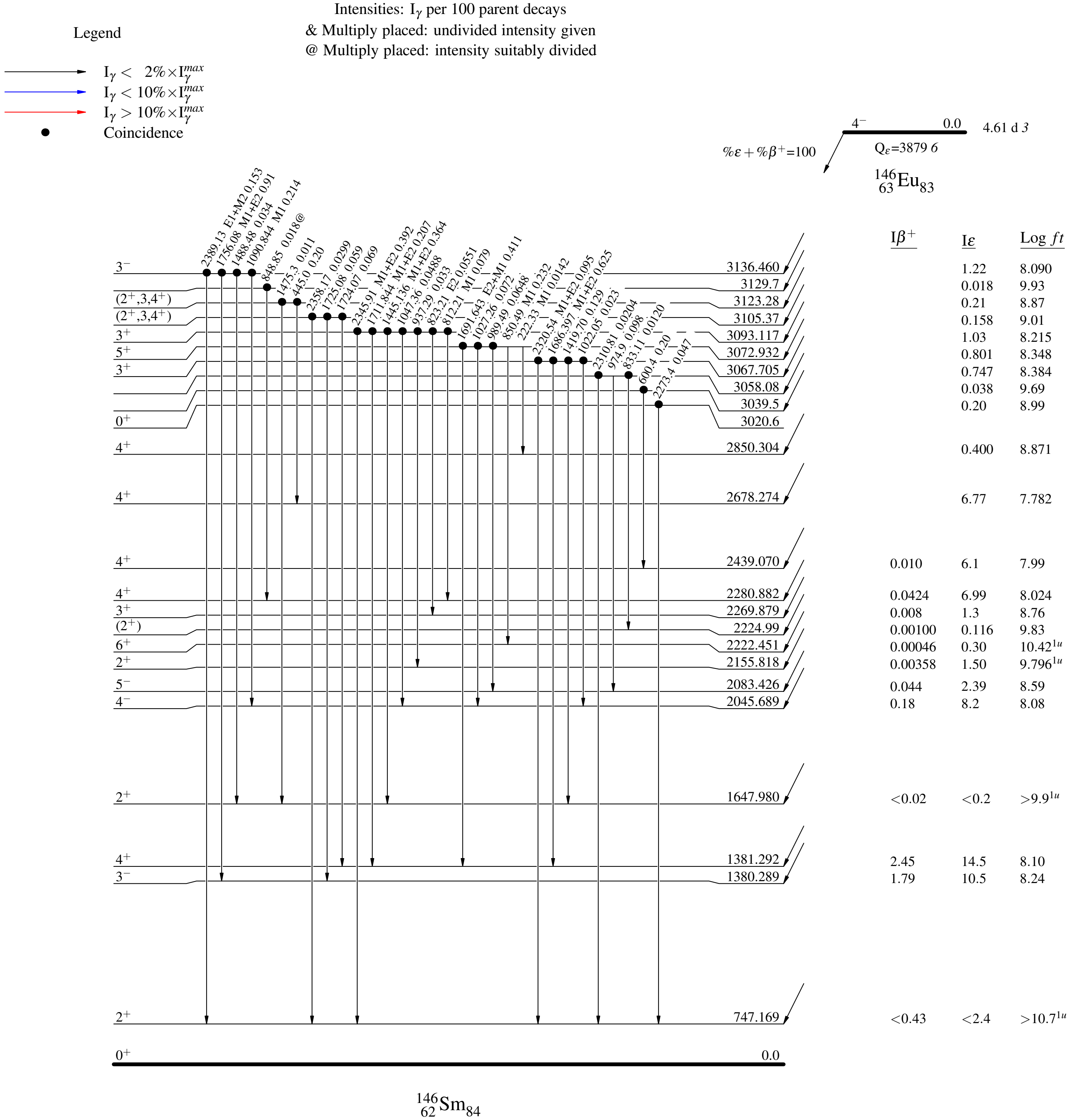
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

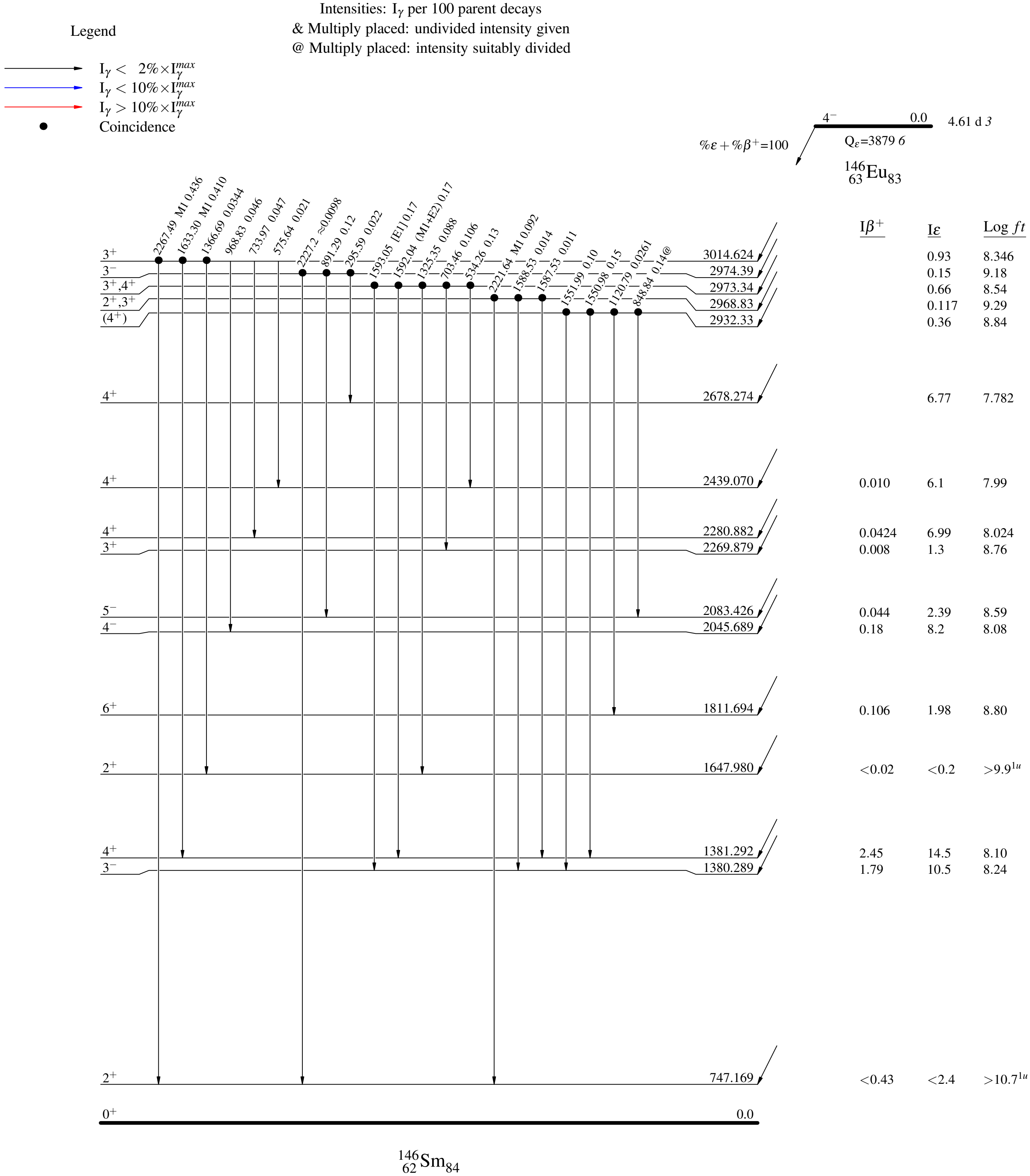
Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



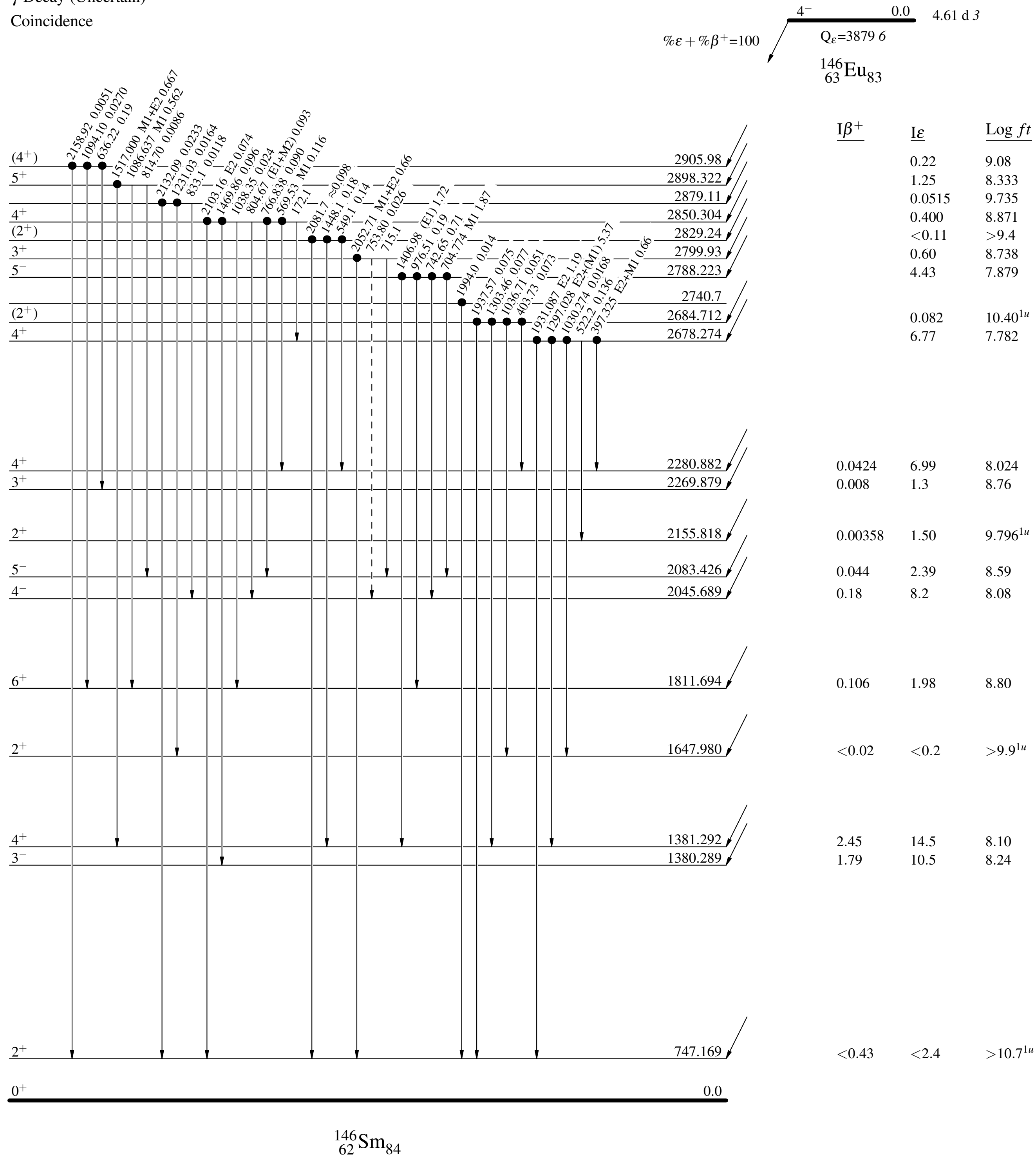
^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



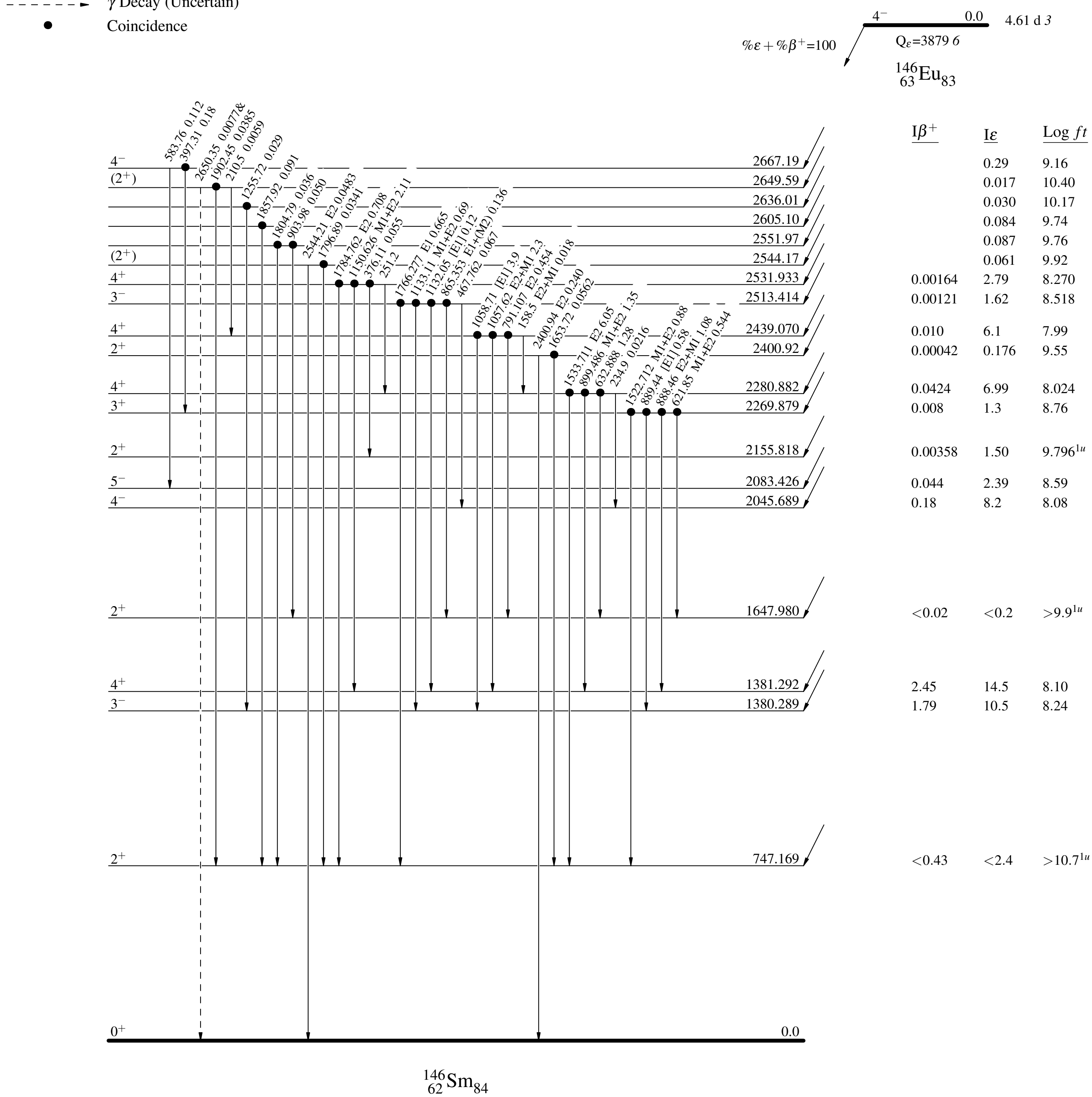
^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

Legend

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



^{146}Eu ε decay 1995Va40,1992Ad04,1976Ad08

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays

& Multiply placed: undivided intensity given

@ Multiply placed: intensity suitably divided