^{41}Ti ε decay (81.9 ms) 1997Ho12,1998Li46,1998Bh12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 133, 1 (2016)	30-Sep-2015

Parent: ^{41}Ti: E=0; $J^\pi=3/2^+$; $T_{1/2}$=81.9 ms *5*; Q(ε)=1.294×10^4 *3*; %ε+%$β^+$ decay=100.0

^{41}Ti decays to ^{40}Ca by εp (≈100%).

1997Ho12: ^{41}Ti activity from the ^{40}Ca(^{3}He,2n) reaction at E(^{3}He)=40 MeV, followed by mass separation. Measured Ep, Ip, coincidences using ΔE-E telescope. In another setup, β-γ and p-γ measured with thick plastic scintillator for βs, an ion-implanted silicon detector for βs and protons and a HPGe detector for γs. A summary of these results is also given in 2014Ka01.

1998Li46: ^{41}Ti activity from the ^{9}Be(^{58}Ni,X) reaction with E(^{58}Ni)=500 MeV/nucleon followed by mass separation. ^{41}Ti implanted in a stack of eight silicon detectors. Measured Ep, Ip in three central silicon detectors and Eγ, Iγ with an array of 14 Crystal Ball NaI detectors.

1998Bh12: ^{41}Ti activity from fragmentation of a ^{50}Cr beam on a Ni target with E(^{50})Cr=82.6 MeV/nucleon followed by separation with the LISE3 spectrometer. Measured Ep, Ip with a stack of five Si surface-barrier detectors and Eγ, Iγ with five HPGe detectors.

Other main references: 1985Zh05, 1974Se11 (also 1973SeYM), 1973Go06, 1966Po12, 1964Re08. Others ($T_{1/2}$): 1996Fa09, 1997Tr11.

Others: 1998Jo20, 1986He13, 1983Sh31, 1977Ce05, 1976Sz04, 1973Ha77, Rogers et al: MIT-LNS Prog. rep., 11 (May 1962); but this report is no longer available.

^{41}Sc Levels

E(level)†	J^π#	E(p)(lab)‡	Comments
2095 *5*	3/2$^+$	986 *5*	E(p)(lab): weighted average of 985 *7* (1998Bh12), 976 *30* (1998Li46), 986 *5* (1997Ho12), 1000 *15* (1974Se11).
2666 *2*	5/2$^+$	1542 *2*	E(p)(lab): weighted average of 1538 *7* (1998Bh12), 1540 *20* (1998Li46), 1542 *2* (1997Ho12), 1546 *15* (1974Se11).
2712 *11*	1/2$^+$	1587 *11*	E(p)(lab): weighted average of 1594 *25* (1998Bh12) and 1586 *11* (1997Ho12).
3414 *4*	1/2$^+$	2272 *4*	E(p)(lab): weighted average of 2278 *7* (1998Bh12), 2270 *25* (1998Li46), 2270 *4* (1997Ho12), 2271 *10* (1974Se11).
3560 *3*	3/2$^+$	2414 *3*	E(p)(lab): weighted average of 2412 *8* (1998Bh12), 2440 *40* (1998Li46), 2414 *3* (1997Ho12), 2409 *20* (1974Se11).
3.69×10^3 *13*	(3/2$^-$,5/2,7/2$^-$)	2.54×10^3 *13*	E(level),E(p)(lab): from 1998Li46.
3808 *12*	(1/2,3/2,5/2)$^+$	2655 *12*	E(p)(lab): weighted average of 2658 *12* (1998Bh12), 2654 *40* (1998Li46), 2650 *12* (1997Ho12), 2662 *20* (1974Se11).
3959 *12*	1/2$^+$	2803 *12*	E(p)(lab): weighted average of 2800 *12* (1998Bh12), 2817 *46* (1998Li46), 2796 *14* (1997Ho12), 2814 *15* (1974Se11).
4247 *5*	5/2$^+$	3084 *5*	E(p)(lab): weighted average of 3087 *7* (1998Bh12), 3095 *10* (1998Li46), 3080 *5* (1997Ho12), 3077 *15* (1974Se11).
4310 *19*	5/2$^+$	3145 *12*	E(p)(lab): weighted average of 3158 *18* (1998Bh12), 3139 *12* (1997Ho12), 3148 *20* (1974Se11).
4506 *13*	3/2$^+$	3337 *13*	E(p)(lab): weighted average of 3352 *15* (1998Bh12), 3295 *40* (1998Li46), 3330 *13* (1997Ho12), 3339 *30* (1974Se11).
4656 *12*	(1/2,3/2,5/2)$^+$	3483 *12*	E(p)(lab): weighted average of 3488 *16* (1998Bh12), 3452 *70* (1998Li46), 3480 *12* (1997Ho12), 3487 *20* (1974Se11).
4776 *6*	3/2$^+$	3600 *6*	E(p)(lab): weighted average of 3604 *11* (1998Bh12), 3569 *40* (1998Li46), 3598 *6* (1997Ho12), 3605 *15* (1974Se11).
4869 *5*	5/2$^+$	3691 *5*	E(p)(lab): weighted average of 3691 *10* (1998Bh12), 3647 *50* (1998Li46), 3691 *5* (1997Ho12), 3690 *15* (1974Se11).
4929 *5*	5/2$^+$	3749 *5*	E(p)(lab): weighted average of 3751 *8* (1998Bh12), 3749 *18* (1998Li46), 3749 *5* (1997Ho12), 3749 *10* (1974Se11).
5007 *9*	1/2$^+$	3825 *9*	E(p)(lab): weighted average of 3803 *18* (1998Bh12), 3857 *40* (1998Li46), 3837 *9* (1997Ho12), 3836 *25* (1974Se11).
5067 *11*	3/2$^+$	3884 *11*	E(p)(lab): weighted average of 3870 *15* (1998Bh12), 3888 *11* (1997Ho12), 3904 *25* (1974Se11). Other: 4025 *40* (1998Li46).
5379 *6*	5/2$^+$	4188 *6*	E(p)(lab): weighted average of 4185 *8* (1998Bh12), 4192 *20* (1998Li46), 4189 *6*

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^{41}Ti ε decay (81.9 ms) 1997Ho12,1998Li46,1998Bh12 (continued)

^{41}Sc Levels (continued)

E(level)[†]	Jπ[#]	E(p)(lab)[‡]	Comments
			(1997Ho12), 4187 *15* (1974Se11).
5496 *13*	1/2+	4302 *13*	E(p)(lab): weighted average of 4323 *32* (1998Bh12) and 4298 *13* (1997Ho12).
5581 *8*	3/2+	4385 *8*	E(p)(lab): weighted average of 4397 *11* (1998Bh12), 4376 *40* (1998Li46), 4381 *8* (1997Ho12), 4379 *15* (1974Se11).
5767 *6*	5/2+	4570 *8*	E(p)(lab): weighted average of 4586 *15* (1998Bh12), 4567 *8* (1997Ho12), 4564 *20* (1974Se11). Other: 4486 *40* (1998Li46). Feeding to the 3904, 2+ in ^{40}Ca gives E(p)=750 *11*, weighted average of 698 *45* (1998Bh12), 754 *12* (1997Ho12), 744 *60* (1998Li46).
5840 *5*	5/2+	4638 *5*	E(p)(lab): weighted average of 4634 *8* (1998Bh12), 4625 *66* (1998Li46), 4639 *5* (1997Ho12), 4638 *10* (1974Se11).
5885 *11*	5/2+	4682 *11*	E(p)(lab): weighted average of 4666 *36* (1998Bh12) and 4684 *11* (1997Ho12).
5940 *4*	3/2+	4735 *4*	T=3/2 E(p)(lab): weighted average of 4736 *8* (1998Bh12), 4727 *16* (1998Li46), 4736 *5* (1997Ho12), 4734 *4* (1974Se11).
6036 *11*	1/2+	4829 *11*	E(p)(lab): weighted average of 4829 *11* (1998Bh12) and 4832 *25* (1974Se11).
6085 *20*	(1/2,3/2,5/2)+	4877 *20*	E(p)(lab): weighted average of 4877 *36* (1998Bh12), 4883 *60* (1998Li46), 4876 *20* (1974Se11).
6102? *15*		1249[@] *15*	E(p)(lab): from 1974Se11. This level may be the same as the 6085 level.
6156 *14*	5/2+	4946 *14*	E(p)(lab): weighted average of 4949 *14* (1998Bh12), 4976 *40* (1998Li46), 4925 *25* (1974Se11).
6305? *40*	(1/2,3/2,5/2)+	5093[&] *40*	E(level): 6305 *40* from E(p)=5093 *40* to ^{40}Ca g.s. and 6293 *70* from E(p)=1272 *70* to 3904, 2+ ^{40}Ca (1998Li46).
6380 *17*	5/2+	5168 *17*	E(p)(lab): weighted average of 5165 *17* (1998Bh12) and 5177 *30* (1974Se11).
6435 *40*	5/2+	5219 *40*	E(p)(lab): from 1998Li46.
6468? *12*	(1/2,3/2,5/2)+	1981[a] *12*	E(p)(lab): weighted average of 1983 *25* (1974Se11) and 1981 *12* (1997Ho12). E(level): this level may be the same as the 6435-keV level.
6560? *60*	5/2+	5364 *60*	E(p)(lab): from 1998Li46.
6673 *40*	(1/2,3/2,5/2)+	5451 *40*	E(p)(lab): from 1998Li46.
6829 *21*	5/2+	5603 *21*	E(p)(lab): weighted average of 5658 *40* (1998Li46) and 5595 *15* (1985Zh05).
6877 *40*	(1/2,3/2,5/2)+	1842[&] *40*	E(p)(lab): from 1998Li46.
6947 *15*	(1/2,3/2,5/2)+	5718 *15*	E(level): also possibly 6936 *30* (1974Se11) from E(p)=2063 *30* to 3737 state in ^{40}Ca. E(p)(lab): weighted average of 5736 *40* (1998Li46) and 5715 *15* (1985Zh05).
7021? *60*		1987[&] *60*	E(p)(lab): from 1998Li46.
7182 *20*	(1/2,3/2,5/2)+	5947 *20*	E(level): also possibly 7153 *42* from E(p)=2111 *42* (1998Li46). E(p)(lab): weighted average of 5889 *94* (1998Li46) and 5950 *20* (1985Zh05).
7360 *20*	(1/2,3/2,5/2)+	6121 *20*	E(p)(lab): weighted average of 6082 *60* (1998Li46) and 6125 *20* (1985Zh05).
7620 *50*	(1/2,3/2,5/2)+	6370 *50*	E(p)(lab): weighted average of 6359 *60* (1998Li46) and 6380 *50* (1985Zh05).
7900 *50*	(1/2,3/2,5/2)+	6680 *50*	E(p)(lab): weighted average of 6725 *60* (1998Li46) and 6650 *50* (1985Zh05).

[†] E(p)(c.m.)+S(p)(^{41}Sc)+E(^{40}Ca). S(p)=1085.00 *8* (2012Wa38).
[‡] Values are in keV.
[#] From the Adopted Levels.
[@] This proton group feeds the 3737 state in ^{40}Ca.
[&] This proton group feeds the 3904, 2+ state in ^{40}Ca.
[a] This proton group feeds the 3353 state in ^{40}Ca.

^{41}Ti ε decay (81.9 ms) 1997Ho12,1998Li46,1998Bh12 (continued)

ε,β+ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(5.04×10^3 *6*)	7900	0.051 *5*	0.00014 *2*	5.26 *6*	0.051 *5*	av Eβ=1835 *29*; εK=0.00249 *11*; εL=0.000250 *11*; εM+=4.26×10^{-5} *19* I(ε+β+): weighted average of 0.078 *26* (1998Li46) and 0.050 *5* (1985Zh05).
(5.32×10^3 *6*)	7620	0.053 *12*	0.00012 *3*	5.37 *11*	0.053 *12*	av Eβ=1971 *29*; εK=0.00204 *9*; εL=0.000205 *9*; εM+=3.48×10^{-5} *15* I(ε+β+): weighted average of 0.10 *3* (1998Li46) and 0.050 *8* (1985Zh05).
(5.58×10^3 *4*)	7360	0.074 *9*	0.00014 *2*	5.35 *6*	0.074 *9*	av Eβ=2097 *18*; εK=0.00171 *4*; εL=0.000172 *4*; εM+=2.93×10^{-5} *7* I(ε+β+): weighted average of 0.16 *5* (1998Li46) and 0.073 *5* (1985Zh05).
(5.76×10^3 *4*)	7182	0.103 *17*	0.00018 *3*	5.28 *8*	0.103 *17*	av Eβ=2184 *18*; εK=0.00153 *4*; εL=0.000153 *4*; εM+=2.61×10^{-5} *6* I(ε+β+): weighted average of 0.21 *5* (1998Li46) and 0.100 *8* (1985Zh05).
(5.92×10^3‡ *7*)	7021?	1.4 *3*	0.0022 *5*	4.21 *10*	1.4 *3*	av Eβ=2263 *33*; εK=0.00138 *6*; εL=0.000139 *6*; εM+=2.37×10^{-5} *10*
(5.99×10^3 *3*)	6947	0.094 *8*	0.00014 *1*	5.42 *4*	0.094 *8*	av Eβ=2299 *17*; εK=0.00132 *3*; εL=0.000133 *3*; εM+=2.26×10^{-5} *5* I(ε+β+): from 1985Zh05. Other: 0.29 *4* (1998Li46).
(6.06×10^3 *5*)	6877	0.8 *3*		4.51 *17*	0.8 *3*	av Eβ=2333 *25*; εK=0.00127 *4*; εL=0.000127 *4*; εM+=2.17×10^{-5} *7* I(ε+β+): from 1998Li46.
(6.11×10^3 *4*)	6829	0.065 *8*	9.0×10^{-5} *11*	5.62 *6*	0.065 *8*	av Eβ=2356 *18*; εK=0.00123 *3*; εL=0.000124 *3*; εM+=2.11×10^{-5} *5* I(ε+β+): from 1985Zh05. Other: 0.8 *4* (1998Li46).
(6.27×10^3 *5*)	6673	0.63 *13*	0.00079 *17*	4.70 *10*	0.63 *13*	av Eβ=2433 *25*; εK=0.00113 *4*; εL=0.000113 *4*; εM+=1.93×10^{-5} *6* I(ε+β+): from 1998Li46.
(6.38×10^3 *7*)	6560?	0.39 *21*	0.00046 *25*	4.95 *24*	0.39 *21*	av Eβ=2488 *33*; εK=0.00106 *4*; εL=0.000106 *4*; εM+=1.81×10^{-5} *7* I(ε+β+): from 1998Li46.
(6.47×10^3 *3*)	6468?	0.7 *2*	0.0008 *2*	4.73 *13*	0.7 *2*	av Eβ=2533 *16*; εK=0.001007 *18*; εL=0.0001011 *1*; εM+=1.72×10^{-5} *3* I(ε+β+): weighted average of 0.7 *2* (1997Ho12) and 0.75 *15* (1974Se11).
(6.51×10^3 *5*)	6435	0.68 *13*	0.00075 *15*	4.75 *9*	0.68 *13*	av Eβ=2549 *25*; εK=0.00099 *3*; εL=9.9×10^{-5} *3*; εM+=1.69×10^{-5} *5* I(ε+β+): from 1998Li46.
(6.56×10^3 *4*)	6380	0.38 *16*	0.00041 *17*	5.03 *19*	0.38 *16*	av Eβ=2576 *17*; εK=0.000960 *18*; εL=9.65×10^{-5} *18*; εM+=1.64×10^{-5} *3* I(ε+β+): weighted average of 1.5 *5* (1998Bh12), 0.36 *7* (1974Se11).
(6.64×10^3‡ *5*)	6305?	1.9 *6*	0.0020 *6*	4.36 *14*	1.9 *6*	av Eβ=2613 *25*; εK=0.000923 *25*; εL=9.27×10^{-5} *25*; εM+=1.58×10^{-5} *5* I(ε+β+): from 0.55 *39* from E(p)=5093 *40* to ^{40}Ca g.s and 1.3 *4* from E(p)=1272 *70* to 3904, 2$^+$ ^{40}Ca (1998Li46).
(6.78×10^3 *3*)	6156	0.73 *12*		4.82 *8*	0.73 *12*	av Eβ=2686 *17* I(ε+β+): weighted average of 1.9 *5* (1998Bh12), 0.94 *44* (1998Li46), 0.70 *7* (1974Se11).
(6.84×10^3‡ *3*)	6102?	0.95 *22*		4.73 *11*	0.95 *22*	av Eβ=2712 *17*

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^{41}Ti ε decay (81.9 ms) 1997Ho12,1998Li46,1998Bh12 (continued)

ε,β⁺ radiations (continued)

E(decay)	E(level)	Iβ⁺ †	Iε†	Log *ft*	I(ε+β⁺)†	Comments
						I(ε+β⁺): from 1974Se11.
(6.86×10³ *4*)	6085	0.83 *10*		4.79 *6*	0.83 *10*	av Eβ=2721 *18* I(ε+β⁺): weighted average of 1.0 *3* (1998Bh12), 0.63 *31* (1998Li46), 0.83 *10* (1974Se11).
(6.90×10³ *3*)	6036	0.8 *3*		4.83 *17*	0.8 *3*	av Eβ=2745 *16* I(ε+β⁺): weighted average of 3.3 *7* (1998Bh12) and 0.73 *7* (1974Se11).
(7.00×10³ *3*)	5940	25.0 *6*	0.0214 *6*	3.364 *15*	25.0 *6*	av Eβ=2792 *15*; εK=0.000766 *12*; εL=7.69×10⁻⁵ *12*; εM+=1.310×10⁻⁵ *20* I(ε+β⁺): weighted average of 26.6 *11* (1998Bh12), 27.9 *29* (1998Li46), 26.1 *10* (1997Ho12), 24.3 *5* (1974Se11).
(7.06×10³ *3*)	5885	1.1 *2*		4.74 *8*	1.1 *2*	av Eβ=2819 *16* I(ε+β⁺): weighted average of 1.2 *3* (1998Bh12) and 1.1 *2* (1997Ho12).
(7.10×10³ *3*)	5840	5.3 *3*	0.0043 *3*	4.07 *3*	5.3 *3*	av Eβ=2841 *15*; εK=0.000729 *11*; εL=7.32×10⁻⁵ *11*; εM+=1.247×10⁻⁵ *19* I(ε+β⁺): weighted average of 3.9 *8* (1998Bh12), 5.0 *4* (1997Ho12), 5.4 *2* (1974Se11). Other: 1.6 *11* (1998Li46).
(7.17×10³ *3*)	5767	0.61 *11*		5.03 *8*	0.61 *11*	av Eβ=2877 *15* I(ε+β⁺): weighted average of 0.7 *2* (1998Bh12), 1.3 *5* (1998Li46), 1.14 *22* (1997Ho12), 0.53 *7* (1974Se11).
(7.36×10³ *3*)	5581	1.75 *10*	0.00126 *8*	4.64 *3*	1.75 *10*	av Eβ=2968 *16*; εK=0.000644 *10*; εL=6.47×10⁻⁵ *10*; εM+=1.102×10⁻⁵ *17* I(ε+β⁺): weighted average of 1.4 *2* (1998Bh12), 2.4 *5* (1998Li46), 0.6 *2* (1997Ho12), 1.75 *10* (1974Se11).
(7.44×10³ *3*)	5496	0.36 *12*		5.35 *15*	0.36 *12*	av Eβ=3010 *16* I(ε+β⁺): weighted average of 0.4 *2* (1998Bh12) and 0.34 *13* (1997Ho12).
(7.56×10³ *3*)	5379	3.73 *12*	0.00245 *9*	4.373 *18*	3.73 *12*	av Eβ=3068 *15*; εK=0.000587 *9*; εL=5.90×10⁻⁵ *9*; εM+=1.004×10⁻⁵ *14* I(ε+β⁺): weighted average of 3.8 *2* (1998Bh12), 3.3 *7* (1998Li46), 3.4 *4* (1997Ho12), 3.74 *12* (1974Se11).
(7.87×10³ *3*)	5067	0.42 *8*		5.42 *9*	0.42 *8*	av Eβ=3221 *16* I(ε+β⁺): weighted average of 0.9 *2* (1998Bh12), 0.5 *20* (1998Li46), 0.84 *20* (1997Ho12), 0.36 *5* (1974Se11).
(7.93×10³ *3*)	5007	0.61 *6*		5.27 *5*	0.61 *6*	av Eβ=3251 *16* I(ε+β⁺): weighted average of 1.0 *3* (1998Bh12), 0.5 *3* (1998Li46), 0.9 *2* (1997Ho12), 0.58 *5* (1974Se11).
(8.01×10³ *3*)	4929	7.6 *5*	0.0041 *3*	4.20 *3*	7.6 *5*	av Eβ=3290 *15*; εK=0.000482 *7*; εL=4.84×10⁻⁵ *7*; εM+=8.24×10⁻⁶ *11* I(ε+β⁺): weighted average of 6.7 *6* (1998Bh12), 10.2 *10* (1998Li46), 7.6 *5* (1997Ho12), 7.5 *5* (1974Se11).
(8.07×10³ *3*)	4869	3.6 *5*	0.0019 *3*	4.54 *7*	3.6 *5*	av Eβ=3319 *15*; εK=0.000470 *6*; εL=4.72×10⁻⁵ *6*; εM+=8.04×10⁻⁶ *11* I(ε+β⁺): weighted average of 3.3 *6* (1998Bh12), 1.4 *5* (1998Li46), 4.7 *4* (1997Ho12), 3.77 *19* (1974Se11).
(8.16×10³ *3*)	4776	2.1 *3*	0.0011 *2*	4.80 *7*	2.1 *3*	av Eβ=3365 *15*; εK=0.000452 *6*; εL=4.54×10⁻⁵ *6*; εM+=7.73×10⁻⁶ *10* I(ε+β⁺): weighted average of 1.5 *2* (1998Bh12), 1.3 *5* (1998Li46), 1.9 *3* (1997Ho12), 2.36 *10* (1974Se11).
(8.28×10³ *3*)	4656	0.65 *7*		5.35 *5*	0.65 *7*	av Eβ=3424 *16* I(ε+β⁺): weighted average of 0.7 *2* (1998Bh12), 1.0 *5*

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^{41}Ti ε decay (81.9 ms) 1997Ho12,1998Li46,1998Bh12 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
						(1998Li46), 0.54 *14* (1997Ho12), 0.68 *10* (1974Se11).
(8.43×10^3 *3*)	4506	0.62 *8*		5.41 *6*	0.62 *8*	av Eβ=3498 *17* I(ε+β+): weighted average of 0.8 *2* (1998Bh12), 0.9 *4* (1998Li46), 0.60 *15* (1997Ho12), 0.56 *10* (1974Se11).
(8.63×10^3 *4*)	4310	0.84 *16*		5.33 *9*	0.84 *16*	av Eβ=3595 *18* I(ε+β+): weighted average of 1.5 *6* (1998Bh12), 0.7 *2* (1997Ho12), 0.97 *27* (1974Se11).
(8.69×10^3 *3*)	4247	16.3 *6*	0.0067 *3*	4.059 *19*	16.3 *6*	av Eβ=3626 *15*; εK=0.000366 *5*; εL=3.67×10^{-5} *5*; εM+=6.25×10^{-6} *8* I(ε+β+): weighted average of 16.5 *8* (1998Bh12), 17.6 *19* (1998Li46), 17.1 *8* (1997Ho12), 14.7 *9* (1974Se11).
(8.98×10^3 *3*)	3959	0.9 *2*		5.39 *10*	0.9 *2*	av Eβ=3769 *16* I(ε+β+): weighted average of 0.6 *2* (1998Bh12), 1.3 *4* (1998Li46), 0.54 *16* (1997Ho12), 1.19 *12* (1974Se11).
(9.13×10^3 *3*)	3808	1.5 *3*		5.21 *9*	1.5 *3*	av Eβ=3843 *16* I(ε+β+): weighted average of 0.8 *2* (1998Bh12), 1.9 *8* (1998Li46), 1.8 *3* (1997Ho12), 1.97 *19* (1974Se11).
(9.25×10^3 *13*)	3690	0.65 *13*		5.60 *10*	0.65 *13*	av Eβ=3902 *66* I(ε+β+): from 1998Li46.
(9.38×10^3 *3*)	3560	2.4 *2*		5.07 *4*	2.4 *2*	av Eβ=3966 *15* I(ε+β+): weighted average of 2.5 *2* (1998Bh12), 1.9 *14* (1998Li46), 2.2 *3* (1997Ho12): Other: 3.57 *7* (1974Se11), not included in average since value includes correction for ^{40}Sc component.
(9.53×10^3 *3*)	3414	5.0 *6*	0.0015 *2*	4.78 *6*	5.0 *6*	av Eβ=4038 *15*; εK=0.000269 *3*; εL=2.71×10^{-5} *3*; εM+=4.61×10^{-6} *5* I(ε+β+): weighted average of 4.1 *2* (1998Bh12), 5.5 *15* (1998Li46), 4.7 *5* (1997Ho12), 6.33 *24* (1974Se11).
(1.023×10^4 *3*)	2712	0.52 *24*		5.93 *20*	0.52 *24*	av Eβ=4386 *16* I(ε+β+): weighted average of 0.4 *1* (1998Bh12) and 1.0 *2* (1997Ho12).
(1.027×10^4 *3*)	2666	4.1 *9*		5.04 *10*	4.1 *9*	av Eβ=4409 *15* I(ε+β+): weighted average of 2.3 *2* (1998Bh12), 5.4 *5* (1998Li46), 7.5 *6* (1997Ho12), 5.24 *19* (1974Se11).
(1.085×10^4 *3*)	2095	5.3 *3*	0.0010 *1*	5.06 *3*	5.3 *3*	av Eβ=4692 *15*; εK=0.0001757 *1*; εL=1.764×10^{-5} *17*; εM+=3.00×10^{-6} *3* I(ε+β+): weighted average of 5.3 *3* (1998Bh12), 6.3 *17* (1998Li46), and 5.1 *5* (1997Ho12). Other: 9.4 *6* (1974Se11), not included in average since value includes correction for ^{40}Sc component.

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.