Table 1. Isotope Summary Table

The following isotopes and isomers have been included in the 1998 Update to the Table of Isotopes. Isotopes indicated in bold are naturally abundant, and those in italics were predicted from systematics by Audi and Wapstra[1]. Isotopes are presumed to be ground-states unless isomer level energies are given in parentheses. Experimental half-lives or widths and/or abundances[2], spin and parity, and decay Q-value or mass excess[1] in keV, are given for each isotope. Decay modes are shown with branching intensities in parentheses. Up to five principal decay γ -rays, ordered by decreasing intensity, are presented.

[1]G.Audi and A.H. Wapstra, *Nucl. Phys.* **A595** , 409(1995).
[2]P. De Bievre and P.D.P. Taylor, *Int. J. Mass Spectrom. Ion Phys.* **123** , 149(1993).

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{1}n	614.8 s *14*	1/2+	Q_{β^-}782.3530 *20*	β–(100%)	
^{1}H	99.985% *1*	1/2+	Δ7288.969 *1*		
^{2}H	0.015% *1*	1+	Δ13135.720 *1*		
^{3}H	12.33 y *6*	1/2+	Q_{β^-}18.591 *1*	β–(100%)	
^{3}He	0.000137% *3*	1/2+	Δ14931.204 *1*		
^{4}H		2-	Q_{β^-}23500 *110*		
^{4}He	99.999863% *3*	0+	Δ2424.911 *1*		
^{4}Li		2-	Q_{EC} 22900 *210*		
^{5}H			Q_{β^-}25400 *900*		
^{5}He	0.60 MeV *2*	3/2-		n(100%)	
^{5}Li	~1.5 MeV	3/2-	Q_{EC} 293 *71*	p(100%)	
^{5}Be			Q_{EC} (26000 *4000*)		
^{6}H			Q_{β^-}24300 *300*		
^{6}He	806.7 ms *15*	0+	Q_{β^-}3507.8 *9*	β–(100%)	
^{6}Li	7.5% *2*	1+	Δ14086.3 *5*		
^{6}Be	92 keV *6*	0+	Q_{EC} 4288 *5*	2pα(100%)	
^{7}He	160 keV *30*	(3/2)-	Q_{β^-}11203 *30*	n(100%)	
^{7}Li	92.5% *2*	3/2-	Δ14907.7 *5*		
^{7}Be	53.29 d *7*	3/2-	Q_{EC} 861.815 *18*	EC(100%)	478
^{7}B	1.4 MeV *2*	(3/2-)	Q_{EC} 12098 *71*	xp(100%)	
^{8}He	119.0 ms *15*	0+	Q_{β^-}10652 *7*	β–(100%), β–n(16% *1*)	981
^{8}Li	838 ms *6*	2+	Q_{β^-}16004.5 *5*	β–(100%), β–2α(100%)	
^{8}Be	6.8 eV *17*	0+		2α(100%)	
^{8}B	770 ms *3*	2+	Q_{EC} 17979.3 *11*	EC+β+(100%), EC2α(100%)	
^{8}C	230 keV *50*	0+	Q_{EC} 12173 *23*	xp(100%)	
^{9}He	0.30 MeV	(1/2-)	Q_{β^-}15864 *62*	n(100%)	
^{9}Li	178.3 ms *4*	3/2-	Q_{β^-}13606.3 *19*	β–(100%), β–n2α(49.5% *5*)	
^{9}Be	100%	3/2-	Δ11347.6 *4*		
^{9}B	0.54 keV *21*	3/2-	Q_{EC} 1068.1 *9*	2αp(100%)	
^{9}C	126.5 ms *9*	(3/2-)	Q_{EC} 16497.9 *24*	EC+β+(100%), ECp2α	
^{10}He	0.3 MeV *2*	0+	Q_{β^-}15760 *72*	n(100%)	
^{10}Li	1.2 MeV *3*		Q_{β^-}20444 *15*	n(100%)	
^{10}Be	1.51×10^{6} y *6*	0+	Q_{β^-}555.8 *6*	β–(100%)	
^{10}B	19.9% *2*	3+	Δ12050.8 *4*		
^{10}C	19.255 s *53*	0+	Q_{EC} 3647.81 *9*	EC+β+(100%)	718, 1022
^{10}N			Q_{EC} (24000 *400*)		
^{11}Li	8.5 ms *2*	3/2-	Q_{β^-}20622 *28*	β–(100%), β–n(85% *1*), β–2n(4.1% *4*), β–2α3n(1.9% *2*), β–αn(0.9% *3*), β–t(0.010% *4*)	3367, 320, 2811, 219, 5955
^{11}Be	13.81 s *8*	1/2+	Q_{β^-}11506 *6*	β–(100%), β–α(3.1% *4*)	4444, 2124, 7283, 5019, 6790
^{11}B	80.1% *2*	3/2-	Δ8668.0 *4*		
^{11}C	20.39 m *2*	3/2-	Q_{EC} 1982.5 *9*	EC+β+(100%)	
^{11}N	740 keV *100*	1/2+	Q_{EC} 14310 *180*	p	
^{12}Li			Q_{β^-}(25020 *100*)		
^{12}Be	23.6 ms *9*	0+	Q_{β^-}11708 *15*	β–(100%)	
^{12}B	20.20 ms *2*	1+	Q_{β^-}13368.9 *14*	β–(100%), β–3α(1.58% *30*)	3215, 4438
^{12}C	98.90% *3*	0+	Δ0.0		

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{12}N	11.000 ms *16*	1+	Q_{EC} 17338.1 *10*	EC+β+(100%), EC3α(3.5% *5*)	4438, 3215
^{12}O	0.40 MeV *25*	0+	Q_{EC} 14710 *18*	2p(60% *30*)	
^{13}Be	0.9 MeV	(1/2,5/2)+	Q_{β^-} 17100 *500*	n(100%)	
^{13}B	17.36 ms *16*	3/2-	Q_{β^-} 13437.2 *11*	β–(100%), β–n(0.28% *4*)	3684, 3089, 3853, 764, 8857
^{13}C	1.10% *3*	1/2-	Δ 3125.011 *1*		
^{13}N	9.965 m *4*	1/2-	Q_{EC} 2220.4 *3*	EC+β+(100%)	
^{13}O	8.58 ms *5*	(3/2-)	Q_{EC} 17765 *10*	EC+β+(100%), ECp(12% *3*)	4438
^{14}Be	4.35 ms *17*	0+	Q_{β^-} 16220 *110*	β–(100%), β–n(81% *4*), β–2n(5% *2*)	
^{14}B	13.8 ms *10*	2-	Q_{β^-} 20644 *21*	β–(100%)	6092, 6727, 1248, 613, 7339
^{14}C	5730 y *40*	0+	Q_{β^-} 156.475 *4*	β–(100%)	
^{14}N	99.634% *9*	1+	Δ 2863.417 *1*		
^{14}O	70.606 s *18*	0+	Q_{EC} 5143.04 *8*	EC+β+(100%)	2313, 1635, 3948
^{14}F		(2-)	Q_{EC} (25600 *400*)	p(100%)	
^{15}B	10.5 ms *3*		Q_{β^-} 19094 *22*	β–(100%)	
^{15}C	2.449 s *5*	1/2+	Q_{β^-} 9771.7 *8*	β–(100%)	5298, 8310, 9047, 7299, 3301
^{15}N	0.366% *9*	1/2-	Δ 101.438 *1*		
^{15}O	122.24 s *16*	1/2-	Q_{EC} 2754.0 *5*	EC+β+(100%)	
^{15}F	1.0 MeV *2*	(1/2+)	Q_{EC} 13920 *130*	p(100%)	
^{16}B	<200 ps	(0-)	Q_{β^-} 23388 *60*	n(100%)	
^{16}C	0.747 s *8*	0+	Q_{β^-} 8011 *4*	β–(100%), β–n(>98.8%)	120, 298, 277, 397
^{16}N	7.13 s *2*	2-	Q_{β^-} 10420 *3*	β–(100%), β–α(0.00120% *5*)	6129, 7115, 2742, 2822, 1755
^{16}O	99.762% *15*	0+	Δ –4736.998 *1*		
^{16}F	40 keV *20*	0-	Q_{EC} 15417 *8*	p(100%)	
^{16}Ne	122 keV *37*	0+	Q_{EC} 13312 *22*	2p(100%)	
^{17}B	5.08 ms *5*	(3/2-)	Q_{β^-} 22680 *140*	β–(100%), β–n	
^{17}C	193 ms *13*		Q_{β^-} 13166 *23*	β–(100%), β–n(32% *3*)	1374, 1850, 1907, 612, 1152
^{17}N	4.173 s *4*	1/2-	Q_{β^-} 8680 *15*	β–(100%), β–n(95.1% *7*)	871, 2184, 3842
^{17}O	0.038% *3*	5/2+	Δ –809.00 *21*		
^{17}F	64.49 s *16*	5/2+	Q_{EC} 2760.7 *3*	EC+β+(100%)	
^{17}Ne	109.2 ms *6*	1/2-	Q_{EC} 14533 *50*	EC+β+(100%), ECp(95.8% *9*), ECα(2.7% *9*)	495
^{18}B			Q_{β^-} (27400 *800*)		
^{18}C	95 ms *10*	0+	Q_{β^-} 11807 *36*	β–(100%), β–n(~25%)	115, 2614, 880, 2499, 1620
^{18}N	624 ms *12*	1-	Q_{β^-} 13899 *20*	β–(100%), β–α(12.2% *6*), β–n(14.3% *20*)	1982, 821, 1652, 2473, 2424
^{18}O	0.200% *12*	0+	Δ –782.1 *8*		
^{18}F	109.77 m *5*	1+	Q_{EC} 1655.5 *6*	EC+β+(100%)	
^{18}Ne	1672 ms *8*	0+	Q_{EC} 4433.4 *16*	EC+β+(100%)	1041, 659, 1701, 1081
^{18}Na			Q_{EC} (20000 *400*)		
^{19}B			Q_{β^-} (26500 *400*)		
^{19}C	46 ms *4*		Q_{β^-} 16970 *110*	β–(100%), β–n(47% *3*)	
^{19}N	0.304 s *16*	(1/2-)	Q_{β^-} 12527 *17*	β–(100%), β–n(62.4% *26*)	96, 3138, 709
^{19}O	26.91 s *8*	5/2+	Q_{β^-} 4821 *3*	β–(100%)	197, 1357, 1444, 110, 1554
^{19}F	100%	1/2+	Δ –1487.41 *7*		
^{19}Ne	17.22 s *2*	1/2+	Q_{EC} 3238.5 *6*	EC+β+(100%)	110, 1357, 197, 1444, 1554
^{19}Na			Q_{EC} 11178 *12*	p	
^{20}C	14 ms *6*	0+	Q_{β^-} 15790 *210*	β–(100%), β–n(72% *14*)	
^{20}N	100 ms $^{+30}_{-20}$		Q_{β^-} 17970 *53*	β–(100%), β–n(~61%)	
^{20}O	13.51 s *5*	0+	Q_{β^-} 3814.3 *12*	β–(100%)	1057, 3488, 2431, 2179, 1309
^{20}F	11.00 s *2*	2+	Q_{β^-} 7024.53 *8*	β–(100%)	1634, 3333, 4966
^{20}Ne	90.48% *3*	0+	Δ –7041.930 *2*		
^{20}Na	447.9 ms *23*	2+	Q_{EC} 13887 *7*	EC+β+(100%), ECα(20.5% *16*)	1634, 8638, 2852, 11259, 4652
^{20}Mg	95 ms $^{+80}_{-50}$	0+	Q_{EC} 10726 *28*	EC+β+(100%), ECp(~3%)	
^{21}C			Q_{β^-} (20700 *500*)		
^{21}N	85 ms *16*		Q_{β^-} 17170 *90*	β–(100%), β–n(84% *9*)	
^{21}O	3.42 s *10*	(1/2,3/2,5/2)+	Q_{β^-} 8109 *12*	β–(100%)	1730, 3517, 280, 1787, 1755
^{21}F	4.158 s *20*	5/2+	Q_{β^-} 5684.1 *18*	β–(100%)	351, 1396, 1746, 4334, 4175
^{21}Ne	0.27% *1*	3/2+	Δ –5731.72 *4*		
^{21}Na	22.49 s *4*	3/2+	Q_{EC} 3547.5 *7*	EC+β+(100%)	351
^{21}Mg	122 ms *3*	(3/2,5/2)+	Q_{EC} 13096 *16*	EC+β+(100%), ECp(29.3%)	1634, 2614, 3333, 4966
^{21}Al			Q_{EC} (15200 *300*)		
^{22}C		0+	Q_{β^-} (20500 *900*)		
^{22}N	24 ms *7*		Q_{β^-} 22800 *200*	β–(100%), β–n(35% *5*)	
^{22}O	2.25 s *15*	0+	Q_{β^-} 6491 *58*	β–(100%)	72, 1874, 710
^{22}F	4.23 s *4*	4+,(3+)	Q_{β^-} 10818 *12*	β–(100%)	1275, 2083, 2166, 4366, 1900
^{22}Ne	9.25% *3*	0+	Δ –8024.34 *22*		

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{22}Na	2.6019 y *4*	3+	Q_{EC} 2842.2 *4*	EC+β+(100%)	1275
^{22}Mg	3.857 s *9*	0+	Q_{EC} 4785.3 *14*	EC+β+(100%)	583, 74, 1280
^{22}Al	70 ms^{+50}_{-35}		Q_{EC} (18580 *93*)	EC+β+(100%), ECp+EC2p(~2.9%)	
^{22}Si	6 ms *3*	0+	Q_{EC} (13980 *220*)	EC+β+(100%), ECp	
^{23}N			Q_{β^-}(23100 *700*)		
^{23}O	82 ms *37*		Q_{β^-} 11290 *130*	β–(100%), β–n(31% *7*)	
^{23}F	2.23 s *14*	(3/2,5/2)+	Q_{β^-} 8483 *80*	β–(100%)	1701, 2129, 1822, 3432, 816
^{23}Ne	37.24 s *12*	5/2+	Q_{β^-} 4375.84 *20*	β–(100%)	440, 1636, 2076, 2982, 2542
^{23}Na	100%	3/2+	Δ –9529.49 *21*		
^{23}Mg	11.317 s *11*	3/2+	Q_{EC} 4056.8 *12*	EC+β+(100%)	440, 2391, 1951
^{23}Al	0.47 s *3*		Q_{EC} 12240 *25*	EC+β+(100%), ECp	
^{23}Si			Q_{EC} (17010 *200*)		
^{24}N			Q_{β^-}(28100 *600*)		
^{24}O	61 ms *26*	0+	Q_{β^-} 11400 *300*	β–(100%), β–n(58% *12*)	
^{24}F	0.34 s *8*	(1,2,3)+	Q_{β^-} 13492 *66*	β–(100%)	1982
^{24}Ne	3.38 m *2*	0+	Q_{β^-} 2470 *10*	β–(100%)	874, 472
^{24}Na	14.9590 h *12*	4+	Q_{β^-} 5515.78 *16*	β–(100%)	1369, 2754, 3866, 997, 4238
^{24}Na(472.207)	20.20 ms *7*	1+		IT(99.95%), β–(0.05%)	472
^{24}Mg	78.99% *3*	0+	Δ –13933.38 *19*		
^{24}Al	2.053 s *4*	4+	Q_{EC} 13878 *4*	EC+β+(100%), ECα(0.035% *6*)	1369, 7070, 2754, 5393, 1077
^{24}Al(425.8)	131.3 ms *25*	1+		IT(82% *3*), EC+β+(18% *3*), ECα(0.028% *6*)	1369, 9966, 8598, 4238, 8689
^{24}Si	102 ms *35*	0+	Q_{EC} 10810 *20*	EC+β+(100%), ECp(~7%)	
^{24}P			Q_{EC} (21200 *500*)		
^{25}O			Q_{β^-}(15900 *400*)		
^{25}F	59 ms *40*		Q_{β^-} 13325 *89*	β–(100%), β–n(15% *10*)	
^{25}Ne	602 ms *8*	(1/2,3/2)+	Q_{β^-} 7299 *45*	β–(100%)	90, 980, 1069, 2202, 3687
^{25}Na	59.1 s *6*	5/2+	Q_{β^-} 3835.3 *12*	β–(100%)	975, 585, 390, 1612, 1380
^{25}Mg	10.00% *1*	5/2+	Δ –13192.73 *19*		
^{25}Al	7.183 s *12*	5/2+	Q_{EC} 4277.0 *7*	EC+β+(100%)	1612, 975, 390, 585
^{25}Si	220 ms *3*	5/2+	Q_{EC} 12741 *10*	EC+β+(100%), ECp	
^{25}P			Q_{EC} (15050 *200*)		
^{26}O			Q_{β^-}(16900 *400*)		
^{26}F			Q_{β^-} 17860 *140*		
^{26}Ne	197 ms *1*	0+	Q_{β^-} 7332 *57*	β–(100%), β–n(0.13% *3*)	234, 151, 83
^{26}Na	1.072 s *9*	3+	Q_{β^-} 9312 *14*	β–(100%)	1809, 1130, 2541, 1896, 1412
^{26}Mg	11.01% *2*	0+	Δ –16214.48 *19*		
^{26}Al	7.4×10^5 y *3*	5+	Q_{EC} 4004.14 *6*	EC+β+(100%)	1809, 1130, 2938
^{26}Al(228.305)	6.3452 s *19*	0+		EC+β+(100%)	
^{26}Si	2.234 s *13*	0+	Q_{EC} 5066 *3*	EC+β+(100%)	829, 1622, 1843, 417, 2512
^{26}P	20 ms^{+35}_{-15}	(3+)	Q_{EC} (18120 *200*)	EC+β+(100%), ECp+EC2p(~1.9%)	
^{26}S			Q_{EC} (15000 *400*)		
^{27}F			Q_{β^-} 18000 *400*		
^{27}Ne	32 ms *2*		Q_{β^-} 12674 *99*	β–(100%), β–n(2.0% *5*)	
^{27}Na	301 ms *6*	5/2+	Q_{β^-} 9006 *38*	β–(100%), β–n(0.13% *4*)	1809
^{27}Mg	9.458 m *12*	1/2+	Q_{β^-} 2610.33 *17*	β–(100%)	844, 1014, 171
^{27}Al	100%	5/2+	Δ –17196.83 *13*		
^{27}Si	4.16 s *2*	5/2+	Q_{EC} 4812.40 *10*	EC+β+(100%)	2211, 2982, 1014, 1720, 2735
^{27}P	260 ms *80*	1/2+	Q_{EC} 11631 *35*	EC+β+(100%), ECp(~0.05%)	
^{27}S	21 ms *4*		Q_{EC} (18260 *200*)	EC+β+(100%), EC2p(2.0% *10*), ECp	
^{28}F			Q_{β^-}(21900 *500*)		
^{28}Ne	17 ms *4*	0+	Q_{β^-} 12310 *140*	β–(100%), β–n(22% *3*)	
^{28}Na	30.5 ms *4*	1+	Q_{β^-} 13985 *76*	β–(100%), β–n(0.58% *12*)	1473, 2389, 3087, 3083, 5271
^{28}Mg	20.91 h *3*	0+	Q_{β^-} 1831.8 *20*	β–(100%)	31, 1342, 942, 401, 1373
^{28}Al	2.2414 m *12*	3+	Q_{β^-} 4642.24 *14*	β–(100%)	1779
^{28}Si	92.23% *1*	0+	Δ –21492.793 *2*		
^{28}P	270.3 ms *5*	3+	Q_{EC} 14332 *4*	EC+β+(100%), ECp(0.0013% *4*), ECα(0.00086% *25*)	1779, 4497, 7536, 6809, 3040
^{28}S	125 ms *10*	0+	Q_{EC} 11230 *160*	EC+β+(100%), ECp(21% *5*)	
^{28}Cl			Q_{EC} (22500 *500*)		
^{29}F			Q_{β^-}(22300 *700*)		
^{29}Ne	0.2 s *1*		Q_{β^-} 15400 *300*	β–(100%)	
^{29}Na	44.9 ms *12*	3/2	Q_{β^-} 13280 *93*	β–(100%), β–n(21.5% *30*)	1473, 2389, 3083, 3087
^{29}Mg	1.30 s *12*	3/2+	Q_{β^-} 7554 *29*	β–(100%)	2224, 1398, 960, 1754, 1430
^{29}Al	6.56 m *6*	5/2+	Q_{β^-} 3679.5 *12*	β–(100%)	1273, 2426, 2028, 1153, 755
^{29}Si	4.67% *1*	1/2+	Δ –21895.03 *3*		
^{29}P	4.140 s *14*	1/2+	Q_{EC} 4943.1 *7*	EC+β+(100%)	1273, 2426, 2028, 1153, 755

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{29}S	187 ms *4*	5/2+	Q_{EC} 13793 *50*	EC+β+(100%), ECp(47% *5*)	1779, 2839
^{29}Cl			Q_{EC} (16300 *200*)		
^{30}Ne		0+	Q_{β^-} 13600 *800*		
^{30}Na	48 ms *2*	2+	Q_{β^-} 17480 *110*	β–(100%), β–n(30% *4*), β–2n(1.17% *16*), β–α(5.5×10^{-5}% *20*)	1473
^{30}Mg	335 ms *17*	0+	Q_{β^-} 6990 *68*	β–(100%)	444, 244, 2169, 688
^{30}Al	3.60 s *6*	3+	Q_{β^-} 8561 *14*	β–(100%)	2235, 1263, 3498, 2595, 1311
^{30}Si	3.10% *1*	0+	Δ –24432.88 *4*		
^{30}P	2.498 m *4*	1+	Q_{EC} 4232.3 *4*	EC+β+(100%)	2235, 1553, 1263, 3498, 1534
^{30}S	1.178 s *5*	0+	Q_{EC} 6138 *3*	EC+β+(100%)	677, 2342, 709, 3019
^{30}Cl			Q_{EC} (18510 *200*)		
^{30}Ar			Q_{EC} (15600 *400*)		
^{31}Ne			Q_{β^-} (18200 *900*)		
^{31}Na	17.0 ms *4*	3/2+	Q_{β^-} 15880 *180*	β–(100%), β–n(37% *5*), β–2n(0.9% *2*)	1482, 1978, 1820, 307, 985
^{31}Mg	230 ms *20*		Q_{β^-} 11739 *78*	β–(100%), β–n(1.7% *3*)	1613, 947, 1626, 666, 3623
^{31}Al	644 ms *25*	(3/2,5/2)+	Q_{β^-} 7995 *20*	β–(100%)	2317, 1695, 752, 1564, 622
^{31}Si	157.3 m *3*	3/2+	Q_{β^-} 1492.03 *19*	β–(100%)	1266
^{31}P	100%	1/2+	Δ –24440.99 *18*		
^{31}S	2.572 s *13*	1/2+	Q_{EC} 5396.1 *15*	EC+β+(100%)	1266, 3134, 3506, 2240, 1868
^{31}Cl	150 ms *25*		Q_{EC} 11980 *50*	EC+β+(100%), ECp(0.44%)	
^{31}Ar	15.1 ms *12*		Q_{EC} (18360 *200*)	EC+β+(100%), ECp(42% *4*), EC2p(2.48% *15*), EC3p(2.1% *10*)	
^{32}Ne		0+	Q_{β^-} (18870 *100*)		
^{32}Na	13.2 ms *4*	(3-,4-)	Q_{β^-} 19100 *500*	β–(100%), β–n(24% *7*), β–2n(8.3% *21*)	1482
^{32}Mg	120 ms *20*	0+	Q_{β^-} 10270 *130*	β–(100%), β–n(2.4% *5*)	2765, 736, 2467
^{32}Al	33 ms *4*	1+	Q_{β^-} 13019 *87*	β–(100%)	1941, 3042, 4230, 2289, 3844
^{32}Si	172 y *4*	0+	Q_{β^-} 224.5 *22*	β–(100%)	
^{32}P	14.262 d *14*	1+	Q_{β^-} 1710.66 *21*	β–(100%)	
^{32}S	95.02% *9*	0+	Δ –26015.98 *11*		
^{32}Cl	298 ms *1*	1+	Q_{EC} 12685 *7*	EC+β+(100%), ECα(0.054% *8*), ECp(0.026% *5*)	2230, 4772, 2465, 1548, 4695
^{32}Ar	98 ms *2*	0+	Q_{EC} 11152 *50*	EC+β+(100%), ECp(43% *3*)	1249
^{32}K			Q_{EC} (22600 *500*)		
^{33}Na	8.2 ms *4*		Q_{β^-} 20300 *1500*	β–(100%), β–n(52% *20*), β–2n(12% *5*)	885
^{33}Mg	90 ms *20*		Q_{β^-} 13710 *160*	β–(100%), β–n(17% *5*)	
^{33}Al			Q_{β^-} 11987 *67*		
^{33}Si	6.18 s *18*		Q_{β^-} 5845 *16*	β–(100%)	1848, 1432, 2539, 416
^{33}P	25.34 d *12*	1/2+	Q_{β^-} 248.5 *11*	β–(100%)	
^{33}S	0.75% *4*	3/2+	Δ –26586.23 *11*		
^{33}Cl	2.511 s *3*	3/2+	Q_{EC} 5582.7 *5*	EC+β+(100%)	841, 1967, 2868, 1472, 2313
^{33}Ar	173.0 ms *20*	1/2+	Q_{EC} 11622 *30*	EC+β+(100%), ECp(38.7% *10*)	2230, 1548
^{33}K			Q_{EC} (16140 *200*)		
^{34}Na	5.5 ms *10*		Q_{β^-} (24100 *1100*)	β–(100%), β–2n	885
^{34}Mg	20 ms *10*	0+	Q_{β^-} 11300 *300*	β–(100%), β–n	
^{34}Al	60 ms *18*		Q_{β^-} 17094 *91*	β–(100%), β–n(27% *5*)	3328, 930, 125, 4257
^{34}Si	2.77 s *20*	0+	Q_{β^-} 4601 *15*	β–(100%)	1179, 429, 1608
^{34}P	12.43 s *8*	1+	Q_{β^-} 5374 *5*	β–(100%)	2127, 4115, 1987, 4074, 1789
^{34}S	4.21% *8*	0+	Δ –29931.85 *10*		
^{34}Cl	1.5264 s *14*	0+	Q_{EC} 5491.28 *7*	EC+β+(100%)	
^{34}Cl(146.36)	32.00 m *4*	3+		EC+β+(55.4% *6*), IT(44.6% *6*)	2127, 1177, 3304, 4115, 1987
^{34}Ar	844.5 ms *34*	0+	Q_{EC} 6062 *3*	EC+β+(100%)	666, 3129, 461, 2580
^{34}K			Q_{EC} (16900 *300*)		
^{34}Ca		0+	Q_{EC} (14600 *400*)		
^{35}Na	1.5 ms *5*		Q_{β^-} (24900 *1600*)	β–(100%), β–n	
^{35}Mg			Q_{β^-} (16400 *500*)		
^{35}Al	150 ms *50*		Q_{β^-} 14300 *150*	β–(100%), β–n(65% *35*)	
^{35}Si	0.78 s *12*		Q_{β^-} 10498 *38*	β–(100%)	4101, 3860, 2386, 241, 392
^{35}P	47.3 s *7*	1/2+	Q_{β^-} 3988.8 *19*	β–(100%)	1572, 2939
^{35}S	87.51 d *12*	3/2+	Q_{β^-} 167.14 *8*	β–(100%)	
^{35}Cl	75.77% *7*	3/2+	Δ –29013.51 *4*		
^{35}Ar	1.775 s *4*	3/2+	Q_{EC} 5965.3 *8*	EC+β+(100%)	1219, 1763, 2694, 3003, 930
^{35}K	190 ms *30*	3/2+	Q_{EC} 11881 *20*	EC+β+(100%), ECp(0.37% *15*)	2983, 2590, 1751, 1184, 5572
^{35}Ca	50 ms *30*		Q_{EC} (15606 *72*)	EC+β+(100%), EC2p	
^{36}Mg		0+	Q_{β^-} (15000 *900*)		
^{36}Al			Q_{β^-} 18300 *300*		

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{36}Si	0.45 s *6*	0+	Q_{β^-}7850 *100*	β–(100%), β–n(<10%)	175, 250, 878, 425, 1856
^{36}P	5.6 s *3*		Q_{β^-}10413 *13*	β–(100%)	3291, 902, 1638, 2540, 829
^{36}S	0.02% *1*	0+	Δ–30663.96 *24*		
^{36}Cl	3.01×10^5 y *2*	2+	Q_{EC}1142.07 *25*, Q_{β^-}708.6 *3*	β–(98.10% *10*), EC+β+(1.90% *10*)	
^{36}Ar	0.337% *3*	0+	Δ–30230.44 *25*		
^{36}K	342 ms *2*	2+	Q_{EC}12805 *8*	EC+β+(100%), ECp(0.048% *14*), ECα(0.0034% *13*)	1970, 2433, 2208, 4440, 6611
^{36}Ca	102 ms *2*	0+	Q_{EC}10986 *41*	EC+β+(100%), ECp(57% *5*)	1184
^{36}Sc			Q_{EC}(20300 *500*)		
^{37}Mg			Q_{β^-}(19500 *1100*)		
^{37}Al			Q_{β^-}16100 *600*		
^{37}Si			Q_{β^-}12470 *130*		
^{37}P	2.31 s *13*		Q_{β^-}7902 *38*	β–(100%)	646, 1583, 2254, 751, 2101
^{37}S	5.05 m *2*	7/2-	Q_{β^-}4865.30 *25*	β–(100%)	3103, 3741, 3086, 906, 1169
^{37}Cl	24.23% *7*	3/2+	Δ–31761.52 *5*		
^{37}Ar	35.04 d *4*	3/2+	Q_{EC}813.5 *3*	EC(100%)	
^{37}K	1.226 s *7*	3/2+	Q_{EC}6148.8 *4*	EC+β+(100%)	2796, 3602
^{37}Ca	181.1 ms *10*	3/2+	Q_{EC}11639 *22*	EC+β+(100%), ECp(76% *3*)	1371
^{37}Sc			Q_{EC}(16000 *300*)		
^{38}Al			Q_{β^-}(19500 *600*)		
^{38}Si		0+	Q_{β^-}10700 *300*		
^{38}P	0.64 s *14*		Q_{β^-}12390 *140*	β–(100%), β–n(<10%)	1292, 2224, 3516, 3698, 4714
^{38}S	170.3 m *7*	0+	Q_{β^-}2937 *7*	β–(100%)	1942, 1746, 2751, 1692, 196
^{38}Cl	37.24 m *5*	2-	Q_{β^-}4916.8 *5*	β–(100%)	2167, 1643
^{38}Cl(671.361)	715 ms *3*	5-		IT(100%)	671
^{38}Ar	0.063% *1*	0+	Δ–34714.8 *5*		
^{38}K	7.636 m *18*	3+	Q_{EC}5913.1 *6*	EC+β+(100%)	2167, 3936, 1769
^{38}K (130.4)	923.9 ms *6*	0+		EC+β+(100%)	
^{38}Ca	440 ms *8*	0+	Q_{EC}6743 *5*	EC+β+(100%)	1568, 328, 3211
^{38}Sc			Q_{EC}(17100 *300*)		
^{38}Ti		0+	Q_{EC}(14000 *400*)		
^{39}Al			Q_{β^-}(18300 *700*)		
^{39}Si			Q_{β^-}(14800 *400*)		
^{39}P	0.16 s^{+30}_{-10}		Q_{β^-}10510 *160*	β–(100%), β–n(41% *24*)	
^{39}S	11.5 s *5*	(3/2,5/2,7/2)-	Q_{β^-}6639 *50*	β–(100%)	1302, 1697, 395, 875, 484
^{39}Cl	55.6 m *2*	3/2+	Q_{β^-}3441 *5*	β–(100%)	1267, 250, 1518, 1091, 986
^{39}Ar	269 y *3*	7/2-	Q_{β^-}565 *5*	β–(100%)	
^{39}K	93.2581% *44*	3/2+	Δ–33806.8 *3*		
^{39}Ca	859.6 ms *14*	3/2+	Q_{EC}6530.6 *18*	EC+β+(100%)	2522
^{39}Sc		(7/2-)	Q_{EC}13108 *24*		
^{39}Ti	26 ms^{+8}_{-7}	(3/2+)	Q_{EC}(15400 *100*)	EC(100%), ECp+EC2p(~14%)	
^{40}Si		0+	Q_{β^-}(13700 *500*)		
^{40}P	260 ms *80*		Q_{β^-}14500 *300*	β–(100%), β–n(30% *10*)	
^{40}S	8.8 s *22*	0+	Q_{β^-}4710 *240*	β–(100%)	212, 432, 888, 677
^{40}Cl	1.35 m *2*	2-	Q_{β^-}7482 *32*	β–(100%)	1461, 2840, 2622, 3101, 2220
^{40}Ar	99.600% *3*	0+	Δ–35039.892 *4*		
^{40}K	1.277×10^9 y *8*	4-	Δ–33535.0 *3*, Q_{EC}1504.9 *3*	β–(89.28% *13*), EC+β+(10.72% *13*)	1461
	0.0117% *1*		Q_{β^-}1311.09 *12*		
^{40}Ca	96.941% *18*	0+	Δ–34846.1 *3*		
^{40}Sc	182.3 ms *7*	4-	Q_{EC}14320 *4*	EC+β+(100%), ECα(0.017% *5*), ECp(0.44% *7*)	3737, 755, 2045, 1877, 3921
^{40}Ti	50 ms *15*	0+	Q_{EC}11680 *160*	EC+β+(100%)	
^{40}V			Q_{EC}(19200 *500*)		
^{41}Si			Q_{β^-}(16700 *800*)		
^{41}P	120 ms *20*		Q_{β^-}13800 *500*	β–(100%), β–n(30% *10*)	
^{41}S			Q_{β^-}8740 *220*		
^{41}Cl	38.4 s *8*	(1/2,3/2)+	Q_{β^-}5728 *65*	β–(100%)	1353, 834, 515, 1354, 1187
^{41}Ar	109.34 m *12*	7/2-	Q_{β^-}2491.6 *7*	β–(100%)	1294, 1677
^{41}K	6.7302% *44*	3/2+	Δ–35558.9 *3*		
^{41}Ca	1.03×10^5 y *4*	7/2-	Q_{EC}421.4 *3*	EC(100%)	
^{41}Sc	596.3 ms *17*	7/2-	Q_{EC}6495.3 *3*	EC+β+(100%)	2575, 2959
^{41}Ti	80 ms *2*	3/2+	Q_{EC}(12929 *35*)	EC+β+(100%), ECp(~100%)	3737
^{41}V			Q_{EC}(15470 *250*)		
^{42}Si		0+	Q_{β^-}(14900 *900*)		
^{42}P	110 ms *30*		Q_{β^-}(17300 *600*)	β–(100%), β–n(50% *20*)	
^{42}S	0.56 s *6*	0+	Q_{β^-}7700 *300*	β–(100%), β–n(<4%)	
^{42}Cl	6.8 s *3*		Q_{β^-}9430 *120*	β–(100%)	
^{42}Ar	32.9 y *11*	0+	Q_{β^-}599 *40*	β–(100%)	
^{42}K	12.360 h *3*	2-	Q_{β^-}3525.4 *3*	β–(100%)	1525, 313, 899, 1922, 1023

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{42}Ca	0.647% *9*	0+	Δ −38546.8 *4*		
^{42}Sc	681.3 ms *7*	0+	Q_{EC} 6425.84 *13*	EC+β+(100%)	313, 1525
^{42}Sc(616.28)	61.7 s *4*	7+,(5+,6+)		EC+β+(100%)	437, 1525, 1228, 328, 899
^{42}Ti	199 ms *6*	0+	Q_{EC} 7000 *6*	EC+β+(100%)	611, 2223, 636, 975, 1586
^{42}V			Q_{EC} (16950 *200*)		
^{42}Cr			Q_{EC} (14200 *400*)		
^{43}P	33 ms *3*		Q_{β^-}(15570 *100*)	β–(100%), β–n(100%)	
^{43}S	220 ms *65*		Q_{β^-}11500 *900*	β–(100%), β–n(40% *10*)	
^{43}Cl	3.3 s *2*		Q_{β^-}7950 *180*	β–(100%)	
^{43}Ar	5.37 m *6*	(3/2,5/2)	Q_{β^-}4616 *71*	β–(100%)	975, 738, 1440, 2345, 1370
^{43}K	22.3 h *1*	3/2+	Q_{β^-}1815 *9*	β–(100%)	373, 617, 397, 593, 221
^{43}Ca	0.135% *6*	7/2-	Δ −38408.4 *5*		
^{43}Sc	3.891 h *12*	7/2-	Q_{EC} 2220.8 *19*	EC+β+(100%)	373, 1931, 1559, 593, 1338
^{43}Ti	509 ms *5*	7/2-	Q_{EC} 6867 *7*	EC+β+(100%)	2288, 845, 2459, 1408, 2335
^{43}V	>800 ms	(7/2-)	Q_{EC} (11300 *230*)	EC+β+(100%)	
^{43}Cr	21 ms *4*	(3/2+)	Q_{EC} (15890 *250*)	EC+β+(100%), ECp, ECα	
^{44}P			Q_{β^-}(20100 *900*)		
^{44}S	123 ms *10*	0+	Q_{β^-}(9100 *600*)	β–(100%), β–n(18% *3*)	
^{44}Cl	434 ms *60*		Q_{β^-}12270 *220*	β–(100%), β–n(<8%)	
^{44}Ar	11.87 m *5*	0+	Q_{β^-}3548 *41*	β–(100%)	183, 1703, 1886, 408, 1051
^{44}K	22.13 m *19*	2-	Q_{β^-}5659 *36*	β–(100%)	1157, 2151, 2519, 1499, 1126
^{44}Ca	2.086% *12*	0+	Δ −41469.1 *9*		
^{44}Sc	3.927 h *8*	2+	Q_{EC} 3653.3 *19*	EC+β+(100%)	1157, 1499, 2656, 2144, 3301
^{44}Sc(271.13)	58.6 h *1*	6+		IT(98.80% *7*), EC+β+(1.20% *7*)	1002, 1126, 1157
^{44}Ti	63 y *3*	0+	Q_{EC} 267.5 *19*	EC(100%)	78, 68, 146
^{44}V	90 ms *25*	(2+)	Q_{EC} (13702 *84*)	EC+β+(100%), ECα	1083, 1448
^{44}V (0+x)	~150 ms	(6+)		EC+β+(100%)	
^{44}Cr	53 ms *4*	0+	Q_{EC} (10310 *160*)	EC+β+(100%), ECp(<10%)	
^{44}Mn			Q_{EC} (19900 *500*)		
^{45}P			Q_{β^-}(18930 *100*)		
^{45}S	82 ms *13*		Q_{β^-}(14100 *900*)	β–(100%), β–n(54%)	
^{45}Cl	400 ms *43*		Q_{β^-}10800 *700*	β–(100%), β–n(24% *4*)	
^{45}Ar	21.48 s *15*		Q_{β^-}6889 *61*	β–(100%)	1020, 3703, 61, 1808, 1107
^{45}K	17.3 m *6*	3/2+	Q_{β^-}4205 *10*	β–(100%)	174, 1706, 2354, 1261, 958
^{45}Ca	162.61 d *9*	7/2-	Q_{β^-}256.8 *9*	β–(100%)	12
^{45}Sc	100%	7/2-	Δ −41069.3 *11*		
^{45}Sc(12.40)	318 ms *7*	3/2+		IT(100%)	12
^{45}Ti	184.8 m *5*	7/2-	Q_{EC} 2062.4 *5*	EC+β+(100%)	720, 1409, 1662, 425, 1237
^{45}V	547 ms *6*	7/2-	Q_{EC} 7133 *17*	EC+β+(100%)	40
^{45}Cr	50 ms *6*		Q_{EC} (12460 *100*)	EC+β+(100%), ECp(~27%)	
^{45}Mn			Q_{EC} (14300 *300*)		
^{45}Fe			Q_{EC} (18700 *500*)		
^{46}P			Q_{β^-}(22600 *1100*)		
^{46}S		0+	Q_{β^-}(14400 *900*)		
^{46}Cl	223 ms *37*		Q_{β^-}(14900 *500*)	β–(100%), β–n(60% *9*)	
^{46}Ar	8.4 s *6*	0+	Q_{β^-}5698 *43*	β–(100%)	1944, 1020, 288, 585
^{46}K	105 s *10*	(2-)	Q_{β^-}7716 *16*	β–(100%)	1346, 1229, 1675, 3020, 4230
^{46}Ca	0.004% *3*	0+	Δ −43134.9 *24*		
^{46}Sc	83.79 d *4*	4+	Q_{EC} 1376.3 *24*, Q_{β^-}2366.7 *7*	β–(100%)	1121, 889, 2010
^{46}Sc(142.528)	18.75 s *4*	1-		IT(100%)	143
^{46}Ti	8.0% *1*	0+	Δ −44125.3 *11*		
^{46}V	422.37 ms *20*	0+	Q_{EC} 7051.4 *10*	EC+β+(100%)	
^{46}V (801.52)	1.02 ms *7*	3+		IT(100%)	802
^{46}Cr	0.26 s *6*	0+	Q_{EC} 7603 *20*	EC+β+(100%)	
^{46}Mn	41 ms *7*		Q_{EC} (17100 *110*)	EC(100%), ECp(32% *6*)	
^{46}Fe	20 ms$^{+20}_{-8}$	0+	Q_{EC} (13100 *400*)	EC(100%), ECp	
^{47}S			Q_{β^-}(18320 *100*)		
^{47}Cl			Q_{β^-}(14700 *600*)	β–(100%), β–n(<3%)	
^{47}Ar	~700 ms		Q_{β^-}9790 *100*	β–(100%), β–n(<1%)	
^{47}K (0)	17.50 s *24*	1/2+	Q_{β^-}6643 *8*	β–(100%)	2014, 586, 565, 2578, 2511
^{47}Ca	4.536 d *3*	7/2-	Q_{β^-}1991.9 *12*	β–(100%)	1297, 489, 808, 767, 531
^{47}Sc	3.3492 d *6*	7/2-	Q_{β^-}600.1 *19*	β–(100%)	159
^{47}Ti	7.3% *1*	5/2-	Δ −44931.7 *10*		
^{47}V	32.6 m *3*	3/2-	Q_{EC} 2927.8 *10*	EC+β+(100%)	1794, 159, 244, 1390, 2163
^{47}Cr	500 ms *15*	3/2-	Q_{EC} 7452 *14*	EC+β+(100%)	88
^{47}Mn	100 ms *50*		Q_{EC} (12290 *160*)	EC+β+(100%), ECp(>3.4% *9*)	
^{47}Fe	27 ms$^{+32}_{-10}$		Q_{EC} (15600 *300*)	EC+β+(100%), ECp	
^{48}S		0+	Q_{β^-}(16900 *1100*)		

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{48}Cl			Q_{β^-}(18400 *800*)		
^{48}Ar		0+	Q_{β^-}(8900 *300*)		
^{48}K	6.8 s *2*	(2-)	Q_{β^-}12090 *24*	β–(100%), β–n(1.14% *15*)	3832, 780, 675, 2789, 1538
^{48}Ca	>6×10^{18} y 0.187% *4*	0+	Δ–44215 *4*, Q_{β^-}278 *5*	β–, β–β–	
^{48}Sc	43.67 h *9*	6+	Q_{β^-}3994 *5*	β–(100%)	1312, 984, 1038, 175, 1213
^{48}Ti	73.8% *1*	0+	Δ–48487.0 *10*		
^{48}V	15.9735 d *25*	4+	Q_{EC} 4012.3 *24*	EC+β+(100%)	984, 1312, 944, 2240, 928
^{48}Cr	21.56 h *3*	0+	Q_{EC} 1659 *8*	EC+β+(100%)	308, 112, 421
^{48}Mn	158.1 ms *22*	4+	Q_{EC} (13818 *71*)	EC+β+(100%), ECp(0.28% *4*), ECα(<6×10^{-4}%)	88, 58, 259, 660, 401
^{48}Fe	44 ms *7*	0+	Q_{EC} (10890 *130*)	EC+β+(100%), ECp(>3.6% *11*)	
^{48}Co			Q_{EC} (19700 *400*)		
^{49}S			Q_{β^-}(20600 *1300*)		
^{49}Cl			Q_{β^-}(16500 *900*)		
^{49}Ar			Q_{β^-}(13700 *500*)		
^{49}K	1.26 s *5*	(3/2+)	Q_{β^-}10970 *70*	β–(100%), β–n(86% *9*)	3832, 452, 4284
^{49}Ca	8.718 m *6*	3/2-	Q_{β^-}5262 *3*	β–(100%)	3084, 4072, 1409, 2372, 4738
^{49}Sc	57.2 m *2*	7/2-	Q_{β^-}2006 *4*	β–(100%)	1762, 1623
^{49}Ti	5.5% *1*	7/2-	Δ–48558.0 *10*		
^{49}V	330 d *15*	7/2-	Q_{EC} 601.9 *8*	EC(100%)	
^{49}Cr	42.3 m *1*	5/2-	Q_{EC} 2631 *3*	EC+β+(100%)	91, 153, 62, 1362, 1514
^{49}Mn	382 ms *7*	5/2-	Q_{EC} 7715 *24*	EC+β+(100%)	272, 2504, 2232
^{49}Fe	70 ms *3*	(7/2-)	Q_{EC} (13030 *160*)	EC+β+(100%), ECp(>62%)	752
^{49}Co			Q_{EC} (15000 *300*)		
^{50}Cl			Q_{β^-}(20300 *1100*)		
^{50}Ar		0+	Q_{β^-}(12300 *800*)		
^{50}K	472 ms *4*	(0-,1,2-)	Q_{β^-}14200 *300*	β–(100%), β–n(29% *3*)	2023, 4072, 3351
^{50}Ca	13.9 s *6*	0+	Q_{β^-}4966 *17*	β–(100%)	257, 1519, 72, 1591, 328
^{50}Sc	102.5 s *5*	5+	Q_{β^-}6888 *16*	β–(100%)	1554, 1121, 524, 2206, 1472
^{50}Sc(256.895)	0.35 s *4*	2+,3+		IT(>97.5%), β–(<2.5%)	257
^{50}Ti	5.4% *1*	0+	Δ–51425.8 *10*		
^{50}V	1.4×10^{17} y$^{+4}_{-3}$ 0.250% *2*	6+	Δ–49217.5 *13*, Q_{EC} 2208.3 *11* Q_{β^-}1036.9 *4*	EC+β+(83% *11*), β–(17% *11*)	1554
^{50}Cr	>1.8×10^{17} y 4.345% *13*	0+	Δ–50254.5 *13*	ECEC	
^{50}Mn	283.88 ms *46*	0+	Q_{EC} 7633.0 *3*	EC+β+(100%)	3629, 2846, 4215, 3044, 783
^{50}Mn(229)	1.75 m *3*	5+		EC+β+(100%)	783, 1098, 1443, 1282, 662
^{50}Fe	150 ms *30*	0+	Q_{EC} 8150 *60*	EC+β+(100%), ECp(~0%)	651
^{50}Co	44 ms *4*	(6+)	Q_{EC} (17280 *180*)	EC+β+(100%), ECp(>42%)	
^{50}Ni			Q_{EC} (13400 *300*)		
^{51}Cl			Q_{β^-}(18900 *1200*)		
^{51}Ar			Q_{β^-}(15700 *900*)		
^{51}K	365 ms *5*	(1/2+,3/2+)	Q_{β^-}(13900 *500*)	β–(100%), β–n(68% *10*)	1027, 1973
^{51}Ca	10.0 s *8*	(3/2-)	Q_{β^-}7332 *93*	β–(100%), β–n	862, 1394, 1168, 1480, 548
^{51}Sc	12.4 s *1*	(7/2)-	Q_{β^-}6508 *20*	β–(100%)	1437, 2144, 1568, 907, 2051
^{51}Ti	5.76 m *1*	3/2-	Q_{β^-}2470.6 *15*	β–(100%)	320, 929, 609
^{51}V	99.750% *2*	7/2-	Δ–52197.5 *13*		
^{51}Cr	27.702 d *4*	7/2-	Q_{EC} 752.73 *24*	EC+β+(100%)	320
^{51}Mn	46.2 m *1*	5/2-	Q_{EC} 3207.8 *5*	EC+β+(100%)	749, 1148, 1164, 2001, 603
^{51}Fe	305 ms *5*	(5/2-)	Q_{EC} 8020 *15*	EC+β+(100%)	237, 1825, 2140, 3423, 3554
^{51}Co			Q_{EC} (12940 *150*)		
^{51}Ni			Q_{EC} (15800 *300*)		
^{52}Ar		0+	Q_{β^-}(14500 *1100*)		
^{52}K	105 ms *5*		Q_{β^-}(16300 *800*)	β–(100%), β–n(91% *9*)	2563
^{52}Ca	4.6 s *3*	0+	Q_{β^-}7900 *500*	β–(100%)	675, 961, 1636, 2070, 4266
^{52}Sc	8.2 s *2*	3+	Q_{β^-}9080 *230*	β–(100%)	1050, 1268, 1032, 1215, 1382
^{52}Ti	1.7 m *1*	0+	Q_{β^-}1973 *7*	β–(100%)	124, 17, 7069, 6957, 6706
^{52}V	3.743 m *5*	3+	Q_{β^-}3975.4 *11*	β–(100%)	1434, 1334, 1531, 936, 647
^{52}Cr	83.789% *18*	0+	Δ–55412.8 *14*		
^{52}Mn	5.591 d *3*	6+	Q_{EC} 4711.7 *20*	EC+β+(100%)	1434, 936, 744, 1334, 1246
^{52}Mn(377.749)	21.1 m *2*	2+		EC+β+(98.25% *5*), IT(1.75% *5*)	1434, 1728, 1531, 1334, 705
^{52}Fe	8.275 h *8*	0+	Q_{EC} 2372 *10*	EC+β+(100%)	169, 378, 1728, 1040, 1531
^{52}Fe(6820)	45.9 s *6*	(12+)		EC+β+(100%)	
^{52}Co	18 ms *13*		Q_{EC} (14413 *66*)	EC+β+(100%)	1536, 850
^{52}Ni	38 ms *5*	0+	Q_{EC} (11260 *110*)	EC+β+(100%), ECp(17% *2*)	
^{52}Cu			Q_{EC} (20000 *300*)		
^{53}Ar			Q_{β^-}(17800 *1200*)		
^{53}K	30 ms *5*	(3/2+)	Q_{β^-}(15900 *900*)	β–(100%), β–n(85% *15*)	

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{53}Ca	90 ms *15*	(3/2-,5/2-)	Q_{β^-}(10100 *600*)	β–(100%), β–n+β–2n(>30%)	
^{53}Sc			Q_{β^-}(8900 *300*)		
^{53}Ti	32.7 s *9*	(3/2)-	Q_{β^-}5020 *100*	β–(100%)	128, 228, 1676, 101, 1904
^{53}V	1.61 m *4*	7/2-	Q_{β^-}3436 *3*	β–(100%)	1006, 1290, 283, 443, 564
^{53}Cr	9.501% *17*	3/2-	Δ–55280.6 *14*		
^{53}Mn	3.74×10^{6} y *4*	7/2-	Q_{EC} 597.0 *4*	EC(100%)	
^{53}Fe	8.51 m *2*	7/2-	Q_{EC} 3742.4 *17*	EC+β+(100%)	378, 1620, 2274, 2749, 1290
^{53}Fe(3040.4) 2.58 m *4*		19/2-		IT(100%)	701, 1328, 1011, 2338, 1713
^{53}Co	240 ms *20*	(7/2-)	Q_{EC} 8302 *18*	EC+β+(100%)	1328
^{53}Co(3190) 247 ms *12*		(19/2-)		EC+β+(~98.5%), p(~1.5%)	2338, 1713, 1328, 1011, 701
^{53}Ni	45 ms *15*	(7/2-)	Q_{EC} (13260 *160*)	EC+β+(100%), ECp(~45%)	850
^{53}Cu			Q_{EC} (15900 *300*)		
^{54}K	10 ms *5*		Q_{β^-}(18000 *1100*)	β–(100%), β–n	
^{54}Ca		0+	Q_{β^-}(10900 *800*)		
^{54}Sc			Q_{β^-}11300 *500*		
^{54}Ti		0+	Q_{β^-}4120 *230*		
^{54}V	49.8 s *5*	3+	Q_{β^-}7042 *15*	β–(100%)	835, 989, 2259, 3170, 2353
^{54}Cr	2.365% *7*	0+	Δ–56928.3 *14*		
^{54}Mn	312.3 d *4*	3+	Q_{EC} 1377.1 *10*, Q_{β^-}697.1 *11*	EC+β+(100%), β–(<2.9×10^{-4}%)	835
^{54}Fe	5.8% *1*	0+	Δ–56248.4 *13*		
^{54}Co	193.23 ms *14*	0+	Q_{EC} 8243.08 *22*	EC+β+(100%)	1153
^{54}Co(199) 1.48 m *2*		(7)+		EC+β+(100%)	1408, 1130, 411
^{54}Ni		0+	Q_{EC} 8799 *50*	EC+β+(100%)	
^{54}Cu			Q_{EC} (17510 *220*)		
^{54}Zn		0+	Q_{EC} (15100 *500*)		
^{55}K			Q_{β^-}(17500 *1200*)		
^{55}Ca			Q_{β^-}(12200 *1200*)		
^{55}Sc			Q_{β^-}(11500 *1100*)		
^{55}Ti			Q_{β^-}7300 *300*		
^{55}V	6.54 s *15*	(7/2-)	Q_{β^-}5960 *100*	β–(100%)	518, 881, 921, 566, 1215
^{55}Cr	3.497 m *3*	3/2-	Q_{β^-}2603.1 *5*	β–(100%)	1528, 2252, 126, 1402, 2240
^{55}Mn	100%	5/2-	Δ–57706.4 *13*		
^{55}Fe	2.73 y *3*	3/2-	Q_{EC} 231.38 *10*	EC(100%)	126
^{55}Co	17.53 h *3*	7/2-	Q_{EC} 3451.3 *4*	EC+β+(100%)	931, 477, 1408, 1316, 1370
^{55}Ni	212.1 ms *38*	7/2-	Q_{EC} 8694 *11*	EC+β+(100%)	
^{55}Cu			Q_{EC} (13700 *300*)	EC+β+(100%)	
^{55}Zn			Q_{EC} (16700 *400*)		
^{56}Ca		0+	Q_{β^-}(12200 *1100*)		
^{56}Sc			Q_{β^-}(13700 *800*)		
^{56}Ti		0+	Q_{β^-}7100 *400*		
^{56}V			Q_{β^-}9050 *240*		
^{56}Cr	5.94 m *10*	0+	Q_{β^-}1617 *10*	β–(100%)	84, 27
^{56}Mn	2.5785 h *2*	3+	Q_{β^-}3695.5 *3*	β–(100%)	847, 1811, 2113, 2523, 2657
^{56}Fe	91.72% *30*	0+	Δ–60601.0 *14*		
^{56}Co	77.27 d *3*	4+	Q_{EC} 4566 *2*	EC+β+(100%)	847, 1238, 2598, 1771, 1038
^{56}Ni	6.077 d *12*	0+	Q_{EC} 2135 *11*	EC+β+(100%)	158, 812, 750, 270, 480
^{56}Cu			Q_{EC} (15300 *140*)		
^{56}Zn		0+	Q_{EC} (12900 *300*)		
^{56}Ga			Q_{EC} (21000 *400*)		
^{57}Ca			Q_{β^-}(14300 *1200*)		
^{57}Sc			Q_{β^-}(13200 *1200*)		
^{57}Ti			Q_{β^-}(9820 *100*)		
^{57}V			Q_{β^-}8000 *300*		
^{57}Cr	21.1 s *10*	3/2-,5/2-,7/2-	Q_{β^-}5092 *92*	β–(100%)	83, 850, 1752, 1535, 206
^{57}Mn	85.4 s *18*	5/2-	Q_{β^-}2691 *3*	β–(100%)	122, 14, 692, 352, 136
^{57}Fe	2.2% *1*	1/2-	Δ–60175.7 *14*		
^{57}Co	271.79 d *9*	7/2-	Q_{EC} 836.0 *4*	EC(100%)	122, 136, 14, 692, 706
^{57}Ni	35.60 h *6*	3/2-	Q_{EC} 3264 *3*	EC+β+(100%)	1378, 127, 1920, 1758, 1047
^{57}Cu	199.4 ms *32*	3/2-	Q_{EC} 8770 *16*	EC+β+(100%)	1113
^{57}Zn	40 ms *10*	(7/2-)	Q_{EC} (14620 *140*)	EC+β+(100%), ECp(>65%)	2701
^{57}Ga			Q_{EC} (16800 *300*)		
^{58}Sc			Q_{β^-}(15800 *1100*)		
^{58}Ti		0+	Q_{β^-}(8800 *700*)		
^{58}V			Q_{β^-}11600 *400*		
^{58}Cr	7.0 s *3*	0+	Q_{β^-}3970 *240*	β–(100%)	683, 126, 290, 520, 174
^{58}Mn	3.0 s *1*	0+	Q_{β^-}6247 *30*	β–(100%)	1447, 2433, 2066, 2273, 811
^{58}Mn(72) 65.3 s *7*		3+		β–(100%), IT(>0%)	811, 1323, 459, 864, 1675
^{58}Fe	0.28% *1*	0+	Δ–62148.8 *14*		
^{58}Co	70.82 d *3*	2+	Q_{EC} 2307.4 *11*, Q_{β^-}381.6 *12*	EC+β+(100%)	811, 864, 1675
^{58}Co(24.889) 9.15 h *10*		5+		IT(100%)	25

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{58}Ni	68.077% *9*	0+	Δ −60223.0 *14*		
^{58}Cu	3.204 s *7*	1+	Q_{EC} 8563.0 *21*	EC+β+(100%)	1454, 1448, 40, 1321, 1488
^{58}Zn	65 ms *9*	0+	Q_{EC} 9367 *50*	EC+β+(100%)	
^{58}Ga			Q_{EC} (18310 *220*)		
^{58}Ge		0+	Q_{EC} (15600 *400*)		
^{59}Sc			$Q_{β^-}$(15000 *1100*)		
^{59}Ti			$Q_{β^-}$(11800 *800*)		
^{59}V			$Q_{β^-}$9900 *400*		
^{59}Cr	0.74 s *24*		$Q_{β^-}$7620 *250*	β−(100%)	1239, 112
^{59}Mn	4.6 s *1*	3/2-,5/2-	$Q_{β^-}$5185 *29*	β−(100%)	727, 473, 571, 591, 287
^{59}Fe	44.503 d *6*	3/2-	$Q_{β^-}$1565.2 *6*	β−(100%)	1099, 1292, 192, 143, 335
^{59}Co	100%	7/2-	Δ −62223.6 *14*		
^{59}Ni	7.6×10^4 y *5*	3/2-	Q_{EC} 1072.5 *6*	EC+β+(100%)	
^{59}Cu	81.5 s *5*	3/2-	Q_{EC} 4799.6 *9*	EC+β+(100%)	1301, 878, 339, 465, 423
^{59}Zn	182.0 ms *18*	3/2-	Q_{EC} 9094 *37*	EC+β+(100%), ECp(0.10% *3*)	491, 914, 423
^{59}Ga			Q_{EC} (13140 *170*)		
^{59}Ge			Q_{EC} (17100 *300*)		
^{60}Ti		0+	$Q_{β^-}$(10380 *100*)		
^{60}V			$Q_{β^-}$13800 *600*		
^{60}Cr	0.57 s *6*	0+	$Q_{β^-}$6100 *400*	β−(100%)	
^{60}Mn	51 s *6*	0+	$Q_{β^-}$8500 *300*	β−(100%)	
^{60}Mn(271.8)	1.77 s *2*	3+		β−(88.5% *8*), IT(11.5% *8*)	272
^{60}Fe	1.5×10^6 y *3*	0+	$Q_{β^-}$237 *3*	β−(100%)	59
^{60}Co	5.2714 y *5*	5+	$Q_{β^-}$2823.9 *5*	β−(100%)	1333, 1173, 347, 826, 2159
^{60}Co(58.59)	10.467 m *6*	2+		IT(99.76% *3*), β−(0.24% *3*)	59
^{60}Ni	26.223% *8*	0+	Δ −64468.1 *14*		
^{60}Cu	23.7 m *4*	2+	Q_{EC} 6126.9 *21*	EC+β+(100%)	1333, 1792, 826, 1862, 3124
^{60}Zn	2.38 m *5*	0+	Q_{EC} 4158 *11*	EC+β+(100%)	670, 61, 273, 334, 365
^{60}Ga			Q_{EC} (14190 *110*)		
^{60}Ge			Q_{EC} (12200 *300*)		
^{60}As			Q_{EC} (21400 *600*)		
^{61}Ti			$Q_{β^-}$(13600 *1100*)		
^{61}V			$Q_{β^-}$(12400 *800*)		
^{61}Cr			$Q_{β^-}$9000 *400*		
^{61}Mn	0.71 s *1*	(5/2-)	$Q_{β^-}$7200 *300*	β−(100%)	629, 207, 391, 422, 238
^{61}Fe	5.98 m *6*	3/2-,5/2-	$Q_{β^-}$3978 *20*	β−(100%)	1205, 1027, 298, 1646, 120
^{61}Co	1.650 h *5*	7/2-	$Q_{β^-}$1321.7 *9*	β−(100%)	67, 909, 841
^{61}Ni	1.140% *1*	3/2-	Δ −64216.8 *14*		
^{61}Cu	3.333 h *5*	3/2-	Q_{EC} 2237.2 *12*	EC+β+(100%)	283, 656, 67, 1185, 373
^{61}Zn	89.1 s *2*	3/2-	Q_{EC} 5637 *16*	EC+β+(100%)	475, 1661, 970, 690, 1185
^{61}Ga	0.15 s *3*	(3/2-)	Q_{EC} (9000 *200*)	EC+β+(100%)	
^{61}Ge	40 ms *15*	(3/2-)	Q_{EC} (13600 *400*)	EC+β+(100%), ECp(~80%)	
^{61}As			Q_{EC} (15700 *700*)		
^{62}V			$Q_{β^-}$(16200 *800*)		
^{62}Cr		0+	$Q_{β^-}$7300 *500*		
^{62}Mn	0.88 s *15*	(3+)	$Q_{β^-}$10400 *300*	β−(100%)	877, 942, 1299, 1815, 1457
^{62}Fe	68 s *2*	0+	$Q_{β^-}$2530 *25*	β−(100%)	506
^{62}Co	1.50 m *4*	2+	$Q_{β^-}$5315 *20*	β−(100%)	1173, 2302, 1129, 1985, 2346
^{62}Co(22)	13.91 m *5*	5+		β−(~100%), IT(<1%)	22
^{62}Ni	3.634% *2*	0+	Δ −66742.7 *14*		
^{62}Cu	9.74 m *2*	1+	Q_{EC} 3948 *4*	EC+β+(100%)	1173, 876, 2302, 1129, 3370
^{62}Zn	9.186 h *13*	0+	Q_{EC} 1627 *11*	EC+β+(100%)	597, 41, 548, 508, 243
^{62}Ga	116.12 ms *23*	0+	Q_{EC} 9171 *26*	EC+β+(100%)	
^{62}Ge		0+	Q_{EC} (9750 *140*)	EC+β+(100%)	
^{62}As			Q_{EC} (17300 *300*)		
^{63}V			$Q_{β^-}$(13900 *1100*)		
^{63}Cr			$Q_{β^-}$(11200 *800*)		
^{63}Mn	0.25 s *4*		$Q_{β^-}$9000 *300*	β−(100%)	
^{63}Fe	6.1 s *6*	(5/2)-	$Q_{β^-}$6060 *190*	β−(100%)	995, 1427, 1299, 1495, 432
^{63}Co	27.4 s *5*	(7/2)-	$Q_{β^-}$3672 *20*	β−(100%)	87, 982, 156, 1365, 1069
^{63}Ni	100.1 y *20*	1/2-	$Q_{β^-}$66.945 *5*	β−(100%)	
^{63}Cu	69.17% *3*	3/2-	Δ −65576.2 *14*		
^{63}Zn	38.47 m *5*	3/2-	Q_{EC} 3366.9 *16*	EC+β+(100%)	670, 962, 1412, 450, 1547
^{63}Ga	32.4 s *5*	3/2-,5/2-	Q_{EC} 5520 *100*	EC+β+(100%)	637, 627, 193, 650, 1395
^{63}Ge	95 ms *23*		Q_{EC} (9780 *220*)	EC+β+(100%)	
^{63}As			Q_{EC} (13100 *500*)		
^{64}Cr		0+	$Q_{β^-}$(9800 *800*)		
^{64}Mn			$Q_{β^-}$12000 *400*		
^{64}Fe	2.0 s *2*	0+	$Q_{β^-}$4700 *300*	β−(100%)	311

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{64}Co	0.30 s *3*	1+	Q_{β^-}7307 *20*	β–(100%)	1346, 931
^{64}Ni	0.926% *1*	0+	Δ–67095.9 *14*		
^{64}Cu	12.700 h *2*	1+	Q_{EC} 1675.10 *20*, Q_{β^-}578.7 *9*	EC+β+(61.0% *3*), β–(39.0% *3*)	1346
^{64}Zn	48.6% *3*	0+	Δ–65999.5 *17*		
^{64}Ga	2.627 m *12*	0+	Q_{EC} 7165 *4*	EC+β+(100%)	992, 808, 3366, 1387, 2195
^{64}Ge	63.7 s *25*	0+	Q_{EC} 4410 *250*	EC+β+(100%)	427, 667, 128, 775, 384
^{64}As			Q_{EC} (14900 *400*)		
^{65}Cr			Q_{β^-}(13300 *1100*)		
^{65}Mn			Q_{β^-}10400 *600*		
^{65}Fe	0.4 s *2*		Q_{β^-}7900 *300*	β–(100%)	
^{65}Co	1.20 s *6*	(7/2)-	Q_{β^-}5958 *13*	β–(100%)	1142, 311, 964, 1211, 1274
^{65}Ni	2.5172 h *3*	5/2-	Q_{β^-}2137.1 *10*	β–(100%)	1482, 1116, 366, 1623, 1725
^{65}Cu	30.83% *3*	3/2-	Δ–67259.7 *17*		
^{65}Zn	244.26 d *26*	5/2-	Q_{EC} 1351.9 *4*	EC+β+(100%)	1116, 345, 771
^{65}Ga	15.2 m *2*	3/2-	Q_{EC} 3254.9 *9*	EC+β+(100%)	115, 61, 153, 752, 54
^{65}Ge	30.9 s *5*	(3/2)-	Q_{EC} 6240 *100*	EC+β+(100%), ECp(0.011% *3*)	650, 62, 809, 191, 588
^{65}As	0.19 s^{+11}_{-7}		Q_{EC} (9400 *400*)	EC+β+(100%)	
^{65}Se			Q_{EC} (14100 *700*)	EC+β+(100%), ECp	
^{66}Mn			Q_{β^-}(13800 *800*)		
^{66}Fe		0+	Q_{β^-}5700 *400*		
^{66}Co	0.23 s *2*	(3+)	Q_{β^-}10000 *3000*	β–(100%)	1425, 1246, 471, 1020
^{66}Ni	54.6 h *4*	0+	Q_{β^-}226 *16*	β–(100%)	
^{66}Cu	5.088 m *11*	1+	Q_{β^-}2642.0 *12*	β–(100%)	1039, 834, 1333, 1873
^{66}Zn	27.9% *2*	0+	Δ–68896.3 *15*		
^{66}Ga	9.49 h *7*	0+	Q_{EC} 5175 *3*	EC+β+(100%)	1039, 2752, 834, 2190, 4296
^{66}Ge	2.26 h *5*	0+	Q_{EC} 2100 *30*	EC+β+(100%)	44, 382, 273, 109, 338
^{66}As	95.77 ms *23*		Q_{EC} (9800 *200*)	EC+β+(100%)	
^{66}Se		0+	Q_{EC} (10100 *400*)		
^{67}Mn			Q_{β^-}(12900 *900*)		
^{67}Fe			Q_{β^-}8700 *500*		
^{67}Co	0.42 s *7*	(7/2-)	Q_{β^-}8400 *300*	β–(100%)	694
^{67}Ni	21 s *1*	(1/2-)	Q_{β^-}3558 *21*	β–(100%)	1937, 1115, 822, 2841, 2680
^{67}Cu	61.83 h *12*	3/2-	Q_{β^-}577 *8*	β–(100%)	185, 93, 91, 300, 394
^{67}Zn	4.1% *1*	5/2-	Δ–67877.2 *16*		
^{67}Ga	3.2612 d *6*	3/2-	Q_{EC} 1000.5 *13*	EC(100%)	93, 185, 300, 394, 91
^{67}Ge	18.9 m *3*	1/2-	Q_{EC} 4223 *5*	EC+β+(100%)	167, 1472, 911, 915, 828
^{67}As	42.5 s *12*	(5/2-)	Q_{EC} 6010 *100*	EC+β+(100%)	123, 121, 244, 808, 790
^{67}Se	60 ms^{+17}_{-11}		Q_{EC} (10150 *220*)	EC+β+(100%), ECp(0.5% *1*)	350
^{67}Br			Q_{EC} (13700 *500*)		
^{68}Fe	0.10 s *6*	0+	Q_{β^-}(7600 *800*)	β–(100%)	
^{68}Co	0.18 s *10*		Q_{β^-}11700 *300*	β–(100%)	
^{68}Ni	19 s^{+3}_{-6}	0+	Q_{β^-}2056 *48*	β–(100%)	
^{68}Cu	31.1 s *15*	1+	Q_{β^-}4462 *46*	β–(100%)	1077, 1261, 1883, 1744, 579
^{68}Cu(721.6)	3.75 m *5*	(6-)		IT(84% *1*), β–(16% *1*)	526, 85, 111, 637, 611
^{68}Zn	18.8% *4*	0+	Δ–70004.0 *16*		
^{68}Ga	67.629 m *24*	1+	Q_{EC} 2921.1 *12*	EC+β+(100%)	1077, 1883, 806, 1261, 579
^{68}Ge	270.8 d *3*	0+	Q_{EC} 106 *7*	EC(100%)	
^{68}As	151.6 s *8*	3+	Q_{EC} 8100 *100*	EC+β+(100%)	1016, 762, 651, 1778, 1413
^{68}Se	35.5 s *7*	0+	Q_{EC} (4700 *300*)	EC+β+(100%)	315, 111, 161, 265, 192
^{68}Br			Q_{EC} (15300 *600*)		
^{69}Fe			Q_{β^-}(11600 *900*)		
^{69}Co	0.27 s *5*		Q_{β^-}9300 *400*	β–(100%)	
^{69}Ni	11.4 s *3*		Q_{β^-}5360 *140*	β–(100%)	1871, 680, 1213, 1483, 205
^{69}Cu	2.85 m *15*	3/2-	Q_{β^-}2675 *8*	β–(100%)	1008, 834, 531, 1430, 595
^{69}Zn	56.4 m *9*	1/2-	Q_{β^-}906 *3*	β–(100%)	319, 872
^{69}Zn(438.64)	13.76 h *2*	9/2+		IT(99.967% *3*), β–(0.033% *3*)	439
^{69}Ga	60.108% *9*	3/2-	Δ–69321 *3*		
^{69}Ge	39.05 h *10*	5/2-	Q_{EC} 2227.3 *6*	EC+β+(100%)	1107, 574, 872, 1337, 319
^{69}As	15.2 m *2*	5/2-	Q_{EC} 4013 *31*	EC+β+(100%)	233, 146, 87, 287, 398
^{69}Se	27.4 s *2*	(3/2-)	Q_{EC} 6783 *38*	EC+β+(100%), ECp(0.045% *10*)	98, 66, 692, 790, 1767
^{69}Br			Q_{EC} (9900 *300*)		
^{69}Kr			Q_{EC} (14100 *600*)		
^{70}Co			Q_{β^-}(12700 *800*)		
^{70}Ni		0+	Q_{β^-}3500 *300*		
^{70}Cu	4.5 s *10*	(1+)	Q_{β^-}6599 *14*	β–(100%)	885, 1876, 1654, 1072, 708
^{70}Cu(140)	47 s *5*	(4)-		β–(100%)	885, 902, 1252, 1108, 387
^{70}Zn	$>5\times10^{14}$ y 0.6% *1*	0+	Δ–69559 *3*		
^{70}Ga	21.14 m *3*	1+	Q_{EC} 654.7 *16*, Q_{β^-}1656 *3*	β–(99.59% *6*), EC(0.41% *5*)	1039, 176, 1215

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{70}Ge	21.23% *4*	0+	Δ −70560.3 *17*		
^{70}As	52.6 m *3*	4(+)	Q_{EC} 6220 *50*	EC+β+(100%)	1039, 1114, 668, 744, 1708
^{70}Se	41.1 m *3*	0+	Q_{EC} (2400 *200*)	EC+β+(100%)	50, 426, 377, 203, 133
^{70}Br	79.1 ms *8*		Q_{EC} (10400 *300*)	EC+β+(100%)	
^{70}Br(0+x)	2.2 s *2*			EC+β+(100%)	
^{70}Kr		0+	Q_{EC} (10600 *500*)		
^{71}Co			$Q_{β^-}$(10900 *900*)		
^{71}Ni	1.86 s *35*		$Q_{β^-}$6900 *400*	β–(100%)	
^{71}Cu	19.5 s *16*	(3/2-)	$Q_{β^-}$4557 *36*	β–(100%)	490, 595, 587, 675, 129
^{71}Zn	2.45 m *10*	1/2-	$Q_{β^-}$2815 *11*	β–(100%)	512, 910, 390, 122, 1120
^{71}Zn(157.7)	3.96 h *5*	9/2+		β–(100%), IT(<0.05%)	386, 487, 620, 512, 596
^{71}Ga	39.892% *9*	3/2-	Δ −70136.8 *18*		
^{71}Ge	11.43 d *3*	1/2-	Q_{EC} 231.9 *3*	EC(100%)	
^{71}Ge(198.367)	20.40 ms *17*	9/2+		IT(100%)	175, 23
^{71}As	65.28 h *15*	5/2-	Q_{EC} 2013 *4*	EC+β+(100%)	175, 1095, 500, 327, 527
^{71}Se	4.74 m *5*	3/2-,5/2-	Q_{EC} (4800 *200*)	EC+β+(100%)	148, 1095, 830, 1243, 870
^{71}Br	21.4 s *6*	5/2-	Q_{EC} (6500 *400*)	EC+β+(100%)	261, 234, 172, 123, 796
^{71}Kr	64 ms$^{+8}_{-5}$		Q_{EC} (10500 *400*)	EC+β+(100%), ECp(5.2% *6*)	
^{71}Rb			Q_{EC} (13800 *600*)		
^{72}Co			$Q_{β^-}$(14100 *900*)		
^{72}Ni	2.1 s *3*	0+	$Q_{β^-}$(5400 *500*)	β–(100%)	
^{72}Cu	6.6 s *1*	(1+)	$Q_{β^-}$(8070 *200*)	β–(100%)	652, 1005, 1658, 847, 1540
^{72}Zn	46.5 h *1*	0+	$Q_{β^-}$458 *6*	β–(100%)	145, 192, 16, 103, 89
^{72}Ga	14.10 h *2*	3-	$Q_{β^-}$3999.1 *23*	β–(100%)	834, 2202, 630, 2508, 894
^{72}Ga(119.66)	39.68 ms *13*	(0+)		IT(100%)	103, 16
^{72}Ge	27.66% *3*	0+	Δ −72585.6 *15*		
^{72}As	26.0 h *1*	2-	Q_{EC} 4356 *4*	EC+β+(100%)	834, 630, 1464, 1051, 894
^{72}Se	8.40 d *8*	0+	Q_{EC} 335 *13*	EC(100%)	46
^{72}Br	78.6 s *24*	3+	Q_{EC} 8700 *300*	EC+β+(100%)	862, 1317, 455, 2372, 775
^{72}Br(100.92)	10.6 s *3*	1-		IT(~100%), EC+β+	101
^{72}Kr	17.2 s *3*	0+	Q_{EC} 5040 *80*	EC+β+(100%)	415, 310, 162, 577, 124
^{72}Rb			Q_{EC} (16000 *600*)		
^{73}Ni	0.90 s *15*		$Q_{β^-}$(8900 *700*)	β–(100%)	
^{73}Cu	3.9 s *3*		$Q_{β^-}$(6300 *300*)	β–(100%)	450, 199, 502, 307, 674
^{73}Zn	23.5 s *10*	(1/2)-	$Q_{β^-}$4294 *40*	β–(100%)	218, 911, 496, 1613, 1197
^{73}Zn(195.5)	5.8 s *8*	(7/2+)		β–, IT	196
^{73}Ga	4.86 h *3*	3/2-	$Q_{β^-}$1593 *6*	β–(100%)	297, 326, 739, 768, 1065
^{73}Ge	7.73% *1*	9/2+	Δ −71297.1 *15*		
^{73}Ge(66.716)	0.499 s *11*	1/2-		IT(100%)	53, 13
^{73}As	80.30 d *6*	3/2-	Q_{EC} 341 *4*	EC(100%)	53, 13
^{73}Se	7.15 h *8*	9/2+	Q_{EC} 2740 *10*	EC+β+(100%)	361, 67, 865, 510, 1111
^{73}Se(25.71)	39.8 m *13*	3/2-		EC+β+(27.4% *3*), IT(72.6% *3*)	67, 254, 84, 393, 401
^{73}Br	3.4 m *2*	1/2-	Q_{EC} 4680 *130*	EC+β+(100%)	65, 336, 700, 126, 401
^{73}Kr	27.0 s *12*	5/2-	Q_{EC} 6650 *190*	EC+β+(100%), ECp(0.68% *12*)	862
^{73}Rb			Q_{EC} (10700 *500*)		
^{73}Sr			Q_{EC} (14500 *800*)	EC+β+(100%), ECp	
^{74}Ni	1.1 s *5*	0+	$Q_{β^-}$(7200 *800*)	β–(100%)	
^{74}Cu	1.594 s *10*	(1+,3+)	$Q_{β^-}$(10000 *400*)	β–(100%)	606, 1064, 1139, 813, 1493
^{74}Zn	95.6 s *12*	0+	$Q_{β^-}$2345 *85*	β–(100%)	49, 143, 57, 192, 52
^{74}Ga	8.12 m *12*	(3-)	$Q_{β^-}$5368 *71*	β–(100%)	596, 2353, 608, 868, 1204
^{74}Ga(59.571)	9.5 s *10*	(0)		IT(>50%), β–(<50%)	57, 60, 3
^{74}Ge	35.94% *2*	0+	Δ −73422.0 *15*		
^{74}As	17.77 d *2*	2-	Q_{EC} 2562.4 *17*, $Q_{β^-}$1353.0 *18*	β–(34% *2*), EC+β+(66% *2*)	596, 608, 1204, 887, 994
^{74}Se	0.89% *2*	0+	Δ −72212.6 *15*		
^{74}Br	25.4 m *3*	(0-)	Q_{EC} 6907 *15*	EC+β+(100%)	635, 219, 634, 2615, 1269
^{74}Br(13.58)	46 m *2*	4(+)		EC+β+(100%)	635, 728, 634, 1269, 1249
^{74}Kr	11.50 m *11*	0+	Q_{EC} 3136 *61*	EC+β+(100%)	90, 203, 297, 63, 307
^{74}Rb	64.9 ms *5*	(0+)	Q_{EC} 10400 *700*	EC+β+(100%)	
^{74}Sr		0+	Q_{EC} (11000 *900*)		
^{75}Ni			$Q_{β^-}$(10500 *900*)		
^{75}Cu	1.224 s *3*		$Q_{β^-}$(8200 *500*)	β–(100%), β–n(3.5% *6*)	
^{75}Zn	10.2 s *2*	(7/2+)	$Q_{β^-}$5996 *71*		229, 432, 156, 606, 410
^{75}Ga	126 s *2*	3/2-	$Q_{β^-}$3392 *7*	β–(100%)	253, 575, 886, 177, 927
^{75}Ge	82.78 m *4*	1/2-	$Q_{β^-}$1176.5 *10*	β–(100%)	265, 199, 469, 419, 618
^{75}Ge(139.69)	47.7 s *5*	7/2+		IT(99.970% *6*), β–(0.030% *6*)	140, 62, 78
^{75}As	100%	3/2-	Δ −73032.5 *16*		
^{75}As(303.9255)	16.79 ms *15*	9/2+		IT(100%)	280, 304, 25
^{75}Se	119.779 d *4*	5/2+	Q_{EC} 863.6 *8*	EC(100%)	265, 136, 280, 121, 401
^{75}Br	96.7 m *13*	3/2-	Q_{EC} 3030 *14*	EC+β+(100%)	287, 141, 428, 377, 432

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{75}Kr	4.3 m *2*	(5/2)+	Q_{EC} 4897 *21*	EC+β+(100%)	132, 155, 153, 88, 120
^{75}Rb	19.0 s *12*	(3/2-,5/2-)	Q_{EC} 7019 *17*	EC+β+(100%)	179.0, 179.0, 187, 672, 493
^{75}Sr	71 ms^{+71}_{-24}		Q_{EC} (10600 *300*)	EC+β+(100%), ECp(6.5% *33*)	
^{76}Ni		0+	$Q_{β-}$(8700 *1100*)		
^{76}Cu(0+x)	0.641 s *6*		$Q_{β-}$(11700 *600*)	β–(100%), β–n(3% *2*)	
^{76}Cu(0+y)	1.27 s *30*			β–(100%)	
^{76}Zn	5.7 s *3*	0+	$Q_{β-}$4160 *80*	β–(100%)	199, 76, 366, 172, 275
^{76}Ga	32.6 s *6*	(2+,3+)	$Q_{β-}$7010 *90*	β–(100%)	563, 546, 1108, 431, 2920
^{76}Ge	7.44% *2*	0+	Δ −73212.9 *15*		
^{76}As	1.0778 d *20*	2-	Q_{EC} 923.3 *9*, $Q_{β-}$2962.0 *8*	β–(100%)	559, 657, 1216, 1213, 1229
^{76}Se	9.36% *11*	0+	Δ −75251.6 *15*		
^{76}Br	16.2 h *2*	1-	Q_{EC} 4963 *9*	EC+β+(100%)	559, 657, 1854, 1216, 2951
^{76}Br(102.58)	1.31 s *2*	(4)+		IT(>99.4%), EC+β+(<0.6%)	772, 559
^{76}Kr	14.8 h *1*	0+	Q_{EC} 1310 *14*	EC+β+(100%)	316, 270, 45, 407, 452
^{76}Rb	36.5 s *6*	1(-)	Q_{EC} 8498 *13*	EC+β+(100%)	2571, 424, 356, 346, 1680
^{76}Sr	8.9 s *3*	0+	Q_{EC} (6100 *300*)	EC+β+(100%)	477, 101, 983, 375, 1174
^{77}Ni			$Q_{β-}$(12000 *1200*)		
^{77}Cu	469 ms *8*		$Q_{β-}$(10100 *700*)	β–(100%), β–n	
^{77}Zn	2.08 s *5*	(7/2+)	$Q_{β-}$7270 *120*	β–(100%)	189, 474, 1832, 161, 106
^{77}Zn(772.39)	1.05 s *10*	(1/2-)		IT(>50%), β–(<50%)	772
^{77}Ga	13.2 s *2*	(3/2-)	$Q_{β-}$5340 *60*	β–(100%)	469, 459, 2187, 1242, 1504
^{77}Ge	11.30 h *1*	7/2+	$Q_{β-}$2702.0 *21*	β–(100%)	264, 211, 216, 416, 558
^{77}Ge(159.7)	52.9 s *6*	1/2-		β–(79% *2*), IT(21% *2*)	160
^{77}As	38.83 h *5*	3/2-	$Q_{β-}$682.9 *18*	β–(100%)	239, 521, 250, 88, 162
^{77}Se	7.63% *6*	1/2-	Δ −74599.0 *15*		
^{77}Se(161.9200)	17.36 s *5*	7/2+		IT(100%)	162
^{77}Br	57.036 h *6*	3/2-	Q_{EC} 1365 *3*	EC+β+(100%)	239, 521, 297, 250, 579
^{77}Br(105.85)	4.28 m *10*	9/2+		IT(100%)	106
^{77}Kr	74.4 m *6*	5/2+	Q_{EC} 3063 *9*	EC+β+(100%)	130, 147, 312, 276, 106
^{77}Rb	3.75 m *8*	3/2-	Q_{EC} 5346 *12*	EC+β+(100%)	67, 179, 393, 150, 627
^{77}Sr	9.0 s *2*	(5/2+,7/2+)	Q_{EC} 6850 *150*	EC+β+(100%), ECp(<0.25%)	147, 160, 145, 1234, 162
^{77}Y			Q_{EC} (11000 *300*)		
^{78}Ni		0+	$Q_{β-}$(10200 *1400*)		
^{78}Cu	342 ms *11*		$Q_{β-}$(13300 *800*)	β–(100%)	
^{78}Zn	1.47 s *15*	0+	$Q_{β-}$6440 *140*	β–(100%)	225, 182, 860, 636, 454
^{78}Ga	5.09 s *5*	(3+)	$Q_{β-}$8200 *80*	β–(100%)	619, 1186, 567, 1025, 1934
^{78}Ge	88.0 m *10*	0+	$Q_{β-}$954 *10*	β–(100%)	277, 294
^{78}As	90.7 m *2*	2-	$Q_{β-}$4209 *10*	β–(100%)	614, 695, 1309, 828, 1240
^{78}Se	23.78% *9*	0+	Δ −77025.7 *15*		
^{78}Br	6.46 m *4*	1+	Q_{EC} 3574 *4*, $Q_{β-}$708 *8*	EC+β+(100%), β–(<0.01%)	614, 885, 695, 1923, 1722
^{78}Br(180.82)	119.2 μs *10*	(4+)			
^{78}Kr	0.35% *2*	0+	Δ −74160 *7*		
^{78}Rb	17.66 m *8*	0(+)	Q_{EC} 7224 *10*	EC+β+(100%)	455, 693, 562, 3438, 1148
^{78}Rb(103.3+x)	5.74 m *5*	4(-)		EC+β+(90% *2*), IT(10% *2*)	
^{78}Sr	2.5 m *3*	0+	Q_{EC} 3761 *11*	EC+β+(100%)	
^{78}Y			Q_{EC} (10500 *400*)		
^{79}Cu	188 ms *25*		$Q_{β-}$(11700 *900*)	β–(100%), β–n(55% *17*)	
^{79}Zn	995 ms *19*	(9/2+)	$Q_{β-}$(9090 *240*)	β–(100%), β–n(1.3% *4*)	702, 866, 874, 979, 279
^{79}Ga	2.847 s *3*	(3/2-)	$Q_{β-}$7000 *80*	β–(100%), β–n(0.089% *19*)	465, 516, 1187, 2140, 1463
^{79}Ge	18.98 s *3*	(1/2)-	$Q_{β-}$4148 *89*	β–(100%)	110, 1506, 100, 503, 1397
^{79}Ge(185.95)	39.0 s *10*	(7/2+)		β–(96% *1*), IT(4% *1*)	186
^{79}As	9.01 m *15*	3/2-	$Q_{β-}$2281 *6*	β–(100%)	96, 365, 432, 879, 476
^{79}Se	1.13×10^6 y *17*	7/2+	$Q_{β-}$151.0 *17*	β–(100%)	
^{79}Se(95.77)	3.92 m *1*	1/2-		IT(99.944% *11*), β–(0.056% *11*)	96
^{79}Br	50.69% *7*	3/2-	Δ −76068.0 *19*		
^{79}Br(207.52)	4.86 s *4*	9/2+		IT(100%)	208
^{79}Kr	35.04 h *10*	1/2-	Q_{EC} 1626 *3*	EC+β+(100%)	261, 398, 606, 306, 217
^{79}Kr(129.78)	50 s *3*	7/2+		IT(100%)	130
^{79}Rb	22.9 m *5*	5/2+	Q_{EC} 3646 *8*	EC+β+(100%)	688, 183, 143, 130, 505
^{79}Sr	2.25 m *10*	3/2(-)	Q_{EC} 5319 *11*	EC+β+(100%)	39, 105, 414, 219, 324
^{79}Y	14.8 s *6*	(5/2+)	Q_{EC} 7100 *500*	EC+β+(100%), ECp	177, 1106, 153
^{79}Zr			Q_{EC} (11000 *600*)		
^{80}Cu			$Q_{β-}$(16300 *900*)		
^{80}Zn	0.545 s *16*	0+	$Q_{β-}$7290 *120*	β–(100%), β–n(1.0% *5*)	713, 715, 965, 686, 642
^{80}Ga	1.697 s *11*	(3)	$Q_{β-}$10380 *120*	β–(100%), β–n(0.89% *6*)	205
^{80}Ge	29.5 s *4*	0+	$Q_{β-}$2670 *18*	β–(100%)	265, 110, 1564, 937, 1256
^{80}As	15.2 s *2*	1+	$Q_{β-}$5641 *21*	β–(100%)	666, 1645, 1207, 1848, 1449
^{80}Se	49.61% *10*	0+	Δ −77759.4 *19*		
^{80}Br	17.68 m *2*	1+	Q_{EC} 1870.6 *3*, $Q_{β-}$2004 *4*	β–(91.7% *2*), EC+β+(8.3% *2*)	666, 813, 687, 677, 1339
^{80}Br(85.843)	4.4205 h *8*	5-		IT(100%)	37, 49

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{80}Kr	2.25% *2*	0+	Δ −77893 *4*		
^{80}Rb	34 s *4*	1+	Q_{EC} 5721 *8*	EC+β+(100%)	617, 704, 640, 1256
^{80}Sr	106.3 m *15*	0+	Q_{EC} 1868 *10*	EC+β+(100%)	589, 175, 553, 379, 236
^{80}Y	35 s *2*	(3,4,5)	Q_{EC} (9100 *400*)	EC+β+(100%)	386, 595, 1185, 757, 852
^{80}Zr		0+	Q_{EC} (5800 *500*)		
^{81}Zn	0.29 s *5*		Q_{β^-}(11900 *400*)	β–(100%), β–n(7.5% *30*)	
^{81}Ga	1.217 s *5*	(5/2-)	Q_{β^-}8320 *150*	β–(100%), β–n(11.9% *7*)	659, 1574, 914
^{81}Ge	7.6 s *6*	(9/2+)	Q_{β^-}6230 *120*	β–(100%)	336, 793, 1496, 93, 1883
^{81}Ge(679.13)	7.6 s *6*	(1/2+)		β–(100%)	93, 336, 197, 738, 2174
^{81}As	33.3 s *8*	3/2-	Q_{β^-}3856 *5*	β–(100%)	468, 491, 521, 1406, 388
^{81}Se	18.45 m *12*	1/2-	Q_{β^-}1585 *3*	β–(100%)	276, 290, 828, 566, 552
^{81}Se(102.99)	57.28 m *2*	7/2+		IT(99.948% *14*), β–(0.052% *14*)	103
^{81}Br	49.31% *7*	3/2-	Δ −77974 *3*		
^{81}Kr	2.29×10^{5} y *11*	7/2+	Q_{EC} 280.7 *5*	EC(100%)	276
^{81}Kr(190.62)	13.10 s *3*	1/2-		IT(99.9975% *4*), EC(2.5×10^{-3}% *4*)	190
^{81}Rb	4.576 h *5*	3/2-	Q_{EC} 2237 *7*	EC+β+(100%)	190, 446, 510, 457, 538
^{81}Rb(86.31)	30.5 m *3*	9/2+		IT(97.6% *6*), EC+β+(2.4% *6*)	50, 644, 1195, 549, 1100
^{81}Sr	22.3 m *4*	1/2-	Q_{EC} 3930 *10*	EC+β+(100%)	154, 148, 443, 188, 575
^{81}Y	70.4 s *10*	(5/2+)	Q_{EC} 5510 *62*	EC+β+(100%)	124, 79, 408, 120, 114
^{81}Zr	15 s *5*		Q_{EC} 7200 *300*	EC+β+(100%), ECp	
^{81}Nb			Q_{EC} (11400 *500*)		
^{82}Zn		0+	Q_{β^-}(10900 *500*)		
^{82}Ga	0.599 s *2*	(1,2,3)	Q_{β^-}(12700 *400*)	β–(100%), β–n(22.3% *22*)	711, 216, 530
^{82}Ge	4.60 s *35*	0+	Q_{β^-}4700 *140*	β–(100%)	1092, 843, 249, 952, 140
^{82}As	19.1 s *5*	(1+)	Q_{β^-}7270 *200*	β–(100%)	655, 1731, 755, 1080, 1971
^{82}As(0+x)	13.6 s *4*	(5-)		β–(100%)	
^{82}Se	1.08×10^{20} y^{+26}_{-6} 8.73% *6*	0+	Δ −77593.4 *21*	β–β–(100%)	
^{82}Br	35.30 h *2*	5-	Q_{EC} 97.5 *24*, Q_{β^-}3092.6 *15*	β–(100%)	777, 554, 619, 698, 1044
^{82}Br(45.9492)	6.13 m *5*	2-		IT(97.6% *3*), β–(2.4% *3*)	46
^{82}Kr	11.6% *1*	0+	Δ −80589 *3*		
^{82}Rb	1.273 m *2*	1+	Q_{EC} 4400 *7*	EC+β+(100%)	777, 1395, 698, 1475, 697
^{82}Rb(68.9)	6.472 h *6*	5-		EC+β+(100%), IT(<0.33%)	777, 554, 619, 1044, 698
^{82}Sr	25.55 d *15*	0+	Q_{EC} 180 *9*	EC(100%)	
^{82}Y	9.5 s *3*	1+	Q_{EC} 7820 *100*	EC+β+(100%)	574, 602, 737, 1176
^{82}Zr	32 s *5*	0+	Q_{EC} 4000 *500*	EC+β+(100%)	525, 397, 278, 248, 144
^{82}Nb			Q_{EC} (11200 *600*)		
^{83}Ga	0.31 s *1*		Q_{β^-}(11500 *600*)	β–(100%), β–n(40% *14*)	
^{83}Ge	1.85 s *6*	(5/2+)	Q_{β^-}(8900 *400*)	β–(100%)	307, 1194, 1526, 1435, 405
^{83}As	13.4 s *3*	(5/2-,3/2-)	Q_{β^-}5460 *220*	β–(100%)	735, 1113, 2077, 2203, 834
^{83}Se	22.3 m *3*	9/2+	Q_{β^-}3669 *5*	β–(100%)	357, 510, 225, 718, 799
^{83}Se(228.5)	70.1 s *4*	1/2-		β–(100%)	1031, 357, 988, 674, 2052
^{83}Br	2.40 h *2*	3/2-	Q_{β^-}973 *4*	β–(100%)	530, 520, 553, 649, 681
^{83}Kr	11.5% *1*	9/2+	Δ −79982 *3*		
^{83}Kr(41.543)	1.83 h *2*	1/2-		IT(100%)	9, 32
^{83}Rb	86.2 d *1*	5/2-	Q_{EC} 909 *7*	EC(100%)	520, 530, 553, 790, 799
^{83}Sr	32.41 h *3*	7/2+	Q_{EC} 2276 *6*	EC+β+(100%)	763, 659, 382, 418, 381
^{83}Sr(259.15)	4.95 s *12*	1/2-		IT(100%)	259
^{83}Y	7.08 m *6*	(9/2+)	Q_{EC} 4469 *43*	EC+β+(100%)	36, 882, 490, 859, 1337
^{83}Y (62.0)	2.85 m *2*	(3/2-)		EC+β+(60% *5*), IT(40% *5*)	259, 422, 495
^{83}Zr	44 s *1*	(1/2-)	Q_{EC} 5868 *85*	EC+β+(100%), ECp	56, 105, 475, 255, 304
^{83}Nb	4.1 s *3*	(5/2+)	Q_{EC} 7500 *300*	EC+β+(100%)	24, 53
^{83}Mo			Q_{EC} (11200 *600*)		
^{84}Ga	85 ms *10*		Q_{β^-}(14000 *700*)	β–(100%), β–n(70% *15*)	
^{84}Ge	966 ms *19*	0+	Q_{β^-}(7700 *500*)	β–(100%), β–n(10.8% *6*)	242, 100
^{84}As	4.02 s *3*		Q_{β^-}(9900 *300*)	β–(100%), β–n(0.28% *4*)	1455, 667, 2087, 2461, 578
^{84}As(0+x)	0.65 s *15*			β–(100%)	
^{84}Se	3.1 m *1*	0+	Q_{β^-}1827 *27*	β–(100%)	408, 499
^{84}Br	31.80 m *8*	2-	Q_{β^-}4655 *25*	β–(100%)	882, 1898, 3928, 2484, 1016
^{84}Br(320)	6.0 m *2*	(5-,6-)		β–(100%)	
^{84}Kr	57.0% *3*	0+	Δ −82431 *3*		
^{84}Rb	32.77 d *14*	2-	Q_{EC} 2680.9 *23*, Q_{β^-}894 *3*	EC+β+(96.2% *5*), β–(3.8% *5*)	882, 1898, 1016
^{84}Rb(463.62)	20.26 m *4*	6-		IT(100%)	248, 464, 216
^{84}Sr	0.56% *1*	0+	Δ −80644 *3*		
^{84}Y	4.6 s *2*	1+	Q_{EC} 6486 *91*	EC+β+(100%)	793
^{84}Y (500)	40 m *1*	(5-)		EC+β+(100%)	793, 975, 1040, 661, 463
^{84}Zr	25.9 m *8*	0+	Q_{EC} (2670 *220*)	EC+β+(100%)	113, 45, 373, 667, 41
^{84}Nb	12 s *3*	(3+)	Q_{EC} (9600 *400*)	EC+β+(100%), ECp	540, 723
^{84}Mo		0+	Q_{EC} (6100 *500*)		

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{85}Ge	535 ms *47*		Q_{β^-}(10100 *600*)	β–(100%), β–n(14% *3*)	102
^{85}As	2.021 s *10*	(3/2-)	Q_{β^-}(8900 *300*)	β–(100%), β–n(59.4% *24*)	1455, 667, 578, 1245, 1844
^{85}Se	31.7 s *9*	(5/2+)	Q_{β^-}6182 *23*	β–(100%)	345, 3397, 1427, 1208, 956
^{85}Br	2.90 m *6*	3/2-	Q_{β^-}2870 *19*	β–(100%)	802, 925, 919, 1727, 862
^{85}Kr	10.756 y *18*	9/2+	Q_{β^-}687.1 *19*	β–(100%)	514, 363, 151, 130
^{85}Kr(304.871)	4.480 h *8*	1/2-		IT(21.4% *4*), β–(78.6% *4*)	305
^{85}Rb	72.165% *20*	5/2-	Δ–82167.7 *23*		
^{85}Sr	64.84 d *2*	9/2+	Q_{EC}1065 *3*	EC(100%)	514, 869, 151, 363, 130
^{85}Sr(238.66)	67.63 m *4*	1/2-		IT(86.6% *4*), EC+β+(13.4% *4*)	151, 130, 732, 451, 581
^{85}Y	2.68 h *5*	(1/2)-	Q_{EC}3255 *25*	EC+β+(100%)	232, 504, 914, 410, 1321
^{85}Y (19.8)	4.86 h *13*	9/2+		EC+β+(100%), IT(<2×10^{-3}%)	232, 2124, 767, 536, 1405
^{85}Zr	7.86 m *4*	7/2+	Q_{EC}4693 *99*	EC+β+(100%)	454, 416, 1198, 266, 1768
^{85}Zr(292.2)	10.9 s *3*	(1/2-)		EC+β+(>8%), IT(<92%)	416
^{85}Nb	20.9 s *7*	(9/2+)	Q_{EC}6000 *200*	EC+β+(100%)	50
^{85}Mo			Q_{EC}(8100 *500*)		
^{85}Tc			Q_{EC}(11500 *600*)		
^{86}Ge		0+	Q_{β^-}(9400 *700*)		
^{86}As	0.945 s *8*		Q_{β^-}(11100 *400*)	β–(100%), β–n(33% *4*)	704
^{86}Se	15.3 s *9*	0+	Q_{β^-}5099 *11*	β–(100%)	2441, 2660, 48, 2011, 208
^{86}Br	55.1 s *4*	(2-)	Q_{β^-}7626 *11*	β–(100%)	1565, 2751, 1362, 1390, 2350
^{86}Kr	17.3% *2*	0+	Δ–83265.9 *11*		
^{86}Rb	18.631 d *18*	2-	Q_{EC}518.6 *25*, Q_{β^-}1774.2 *14*	β–(99.9948% *5*), EC(0.0052% *5*)	1077
^{86}Rb(556.06)	1.017 m *3*	6-		IT(100%)	556
^{86}Sr	9.86% *1*	0+	Δ–84521.6 *22*		
^{86}Y	14.74 h *2*	4-	Q_{EC}5240 *14*	EC+β+(100%)	1077, 628, 1153, 777, 1921
^{86}Y (218.30)	48 m *1*	(8+)		IT(99.31% *4*), EC+β+(0.69% *4*)	627, 1153, 1077, 99
^{86}Zr	16.5 h *1*	0+	Q_{EC}1477 *33*	EC+β+(100%)	243, 29, 612, 136, 621
^{86}Nb	88 s *1*	(5+)	Q_{EC}7978 *80*	EC+β+(100%)	752, 915, 1003, 670, 585
^{86}Nb(0+y)	56 s *8*			EC+$b+	
^{86}Mo	19.6 s *11*	0+	Q_{EC}5300 *400*	EC+β+(100%)	50, 47, 187
^{86}Tc			Q_{EC}(11400 *500*)		
^{87}As	0.48 s *4*	(3/2-)	Q_{β^-}(10300 *500*)	β–(100%), β–n(15.4% *22*)	
^{87}Se	5.29 s *11*	(5/2+)	Q_{β^-}7275 *35*	β–(100%), β–n(0.36% *8*)	243, 334, 573, 468, 1878
^{87}Br	55.60 s *15*	3/2-	Q_{β^-}6853 *18*	β–(100%), β–n(2.52% *7*)	1420, 1476, 1578, 532, 2006
^{87}Kr	76.3 m *6*	5/2+	Q_{β^-}3885 *3*	β–(100%)	403, 2555, 845, 2558, 2012
^{87}Rb	4.75×10^{10} y *4* 27.835% *20*	3/2-	Δ–84595.0 *25*, Q_{β^-}283.3 *15*	β–(100%)	
^{87}Sr	7.00% *1*	9/2+	Δ–84878.4 *22*		
^{87}Sr(388.532)	2.803 h *3*	1/2-		EC(0.30% *8*), IT(99.70% *8*)	389
^{87}Y	79.8 h *3*	1/2-	Q_{EC}1861.6 *14*	EC+β+(100%)	485, 389
^{87}Y (380.79)	13.37 h *3*	9/2+		IT(98.43% *10*), EC+β+(1.57% *10*)	381
^{87}Zr	1.68 h *1*	(9/2)+	Q_{EC}3669 *9*	EC+β+(100%)	1227, 1210, 1024, 794, 2222
^{87}Zr(335.73)	14.0 s *2*	(1/2)-		IT(100%)	201, 135
^{87}Nb	2.6 m *1*	(9/2+)	Q_{EC}5165 *60*	EC+β+(100%)	201, 471, 1067, 1885, 617
^{87}Nb(0+x)	3.7 m *1*	(1/2-)		EC+β+(100%)	
^{87}Mo	13.4 s *4*	(7/2+)	Q_{EC}6490 *210*	EC+β+(100%), ECp	263, 397, 586
^{87}Tc		(9/2+)	Q_{EC}(8600 *400*)		
^{87}Ru			Q_{EC}(11800 *700*)		
^{88}As			Q_{β^-}(12200 *600*)		
^{88}Se	1.53 s *6*	0+	Q_{β^-}6854 *31*	β–(100%), β–n(0.99% *10*)	159, 259, 1904, 1745, 1645
^{88}Br	16.34 s *8*	(1,2-)	Q_{β^-}8960 *36*	β–(100%), β–n(6.58% *18*)	532
^{88}Kr	2.84 h *3*	0+	Q_{β^-}2914 *14*	β–(100%)	2392, 196, 2196, 835, 1530
^{88}Rb	17.78 m *11*	2-	Q_{β^-}5313 *4*	β–(100%)	1836, 898, 2678, 1382, 2119
^{88}Sr	82.58% *1*	0+	Δ–87919.7 *22*		
^{88}Y	106.65 d *4*	4-	Q_{EC}3622.6 *15*	EC+β+(100%)	1836, 898, 2734, 851, 1382
^{88}Y (674.55)	13.9 ms *2*	(8)+		IT(100%)	443, 232
^{88}Zr	83.4 d *3*	0+	Q_{EC}673 *10*	EC(100%)	393
^{88}Nb	14.5 m *1*	(8+)	Q_{EC}(7200 *200*)	EC+β+(100%)	1083, 1057, 671, 503, 399
^{88}Nb(0+x)	7.8 m *1*	(4-)		EC+β+(100%)	
^{88}Mo	8.0 m *2*	0+	Q_{EC}(3720 *200*)	EC+β+(100%)	171, 80, 131, 91
^{88}Tc	6.4 s *8*	(6,7,8)	Q_{EC}(10100 *300*)	EC+β+(100%)	741, 914, 972, 446, 723
^{88}Tc(0+x)	5.8 s *2*	(2,3)		EC+β+(100%)	
^{88}Ru		0+	Q_{EC}(7100 *600*)		
^{89}As			Q_{β^-}(12300 *700*)		
^{89}Se	0.41 s *4*	(5/2+)	Q_{β^-}(9000 *300*)	β–(100%), β–n(7.8% *25*)	130
^{89}Br	4.348 s *22*	(3/2-,5/2-)	Q_{β^-}8155 *30*	β–(100%), β–n(13.8% *4*)	775, 802, 869, 1577
^{89}Kr	3.15 m *4*	(3/2+,5/2+)	Q_{β^-}4986 *51*	β–(100%)	221, 586, 904, 1473, 497
^{89}Rb	15.15 m *12*	3/2-	Q_{β^-}4496 *6*	β–(100%)	1032, 1248, 2196, 658, 2570
^{89}Sr	50.53 d *7*	5/2+	Q_{β^-}1495.1 *22*	β–(100%)	909
^{89}Y	100%	1/2-	Δ–87702.1 *23*		
^{89}Y (908.96)	16.06 s *4*	9/2+		IT(100%)	909

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{89}Zr	78.41 h *12*	9/2+	Q_{EC} 2832.7 *25*	EC+β+(100%)	909, 1713, 1745, 1657, 1621
^{89}Zr(587.84)	4.18 m *1*	1/2-		EC+β+(6.23% *12*), IT(93.77% *12*)	1507
^{89}Nb(0+x)	1.9 h *2*	(9/2+)	Q_{EC} 4291 *36*	EC+β+(100%)	
^{89}Nb(0+y)	1.18 h *10*	(1/2)-		EC+β+(100%)	
^{89}Mo	2.04 m *11*	(9/2+)	Q_{EC} 5575 *38*	EC+β+(100%)	659, 1273, 844, 1155, 2221
^{89}Mo(387.5)	190 ms *15*	(1/2-)		IT(100%)	269, 119
^{89}Tc(0+x)	12.8 s *9*	(9/2+)	Q_{EC} 7510 *210*	EC+β+(100%)	
^{89}Tc(0+y)	12.9 s *8*	(1/2-)		EC+β+(100%)	
^{89}Ru			Q_{EC} (8000 *500*)		
^{89}Rh			Q_{EC} (12400 *700*)		
^{90}Se			Q_{β^-}(8200 *400*)		
^{90}Br	1.910 s *2*		Q_{β^-} 10350 *75*	β–(100%), β–n(25.2% *9*)	411, 963, 1098, 998, 991
^{90}Kr	32.32 s *9*	0+	Q_{β^-} 4392 *17*	β–(100%)	1119, 122, 539, 242, 1538
^{90}Rb	158 s *5*	0-	Q_{β^-} 6587 *8*	β–(100%)	832, 1061, 4366, 4136, 3383
^{90}Rb(106.90)	258 s *4*	3-		β–(97.4% *4*), IT(2.6% *4*)	107
^{90}Sr	28.78 y *4*	0+	Q_{β^-} 546.0 *14*	β–(100%)	
^{90}Y	64.10 h *8*	2-	Q_{β^-} 2280.1 *16*	β–(100%)	2186, 1761
^{90}Y (682.03)	3.19 h *1*	7+		IT(99.9982% *2*), β–(0.0018% *2*)	203, 480, 682
^{90}Zr	51.45% *3*	0+	Δ –88767.9 *22*		
^{90}Zr(2319.000)	809.2 ms *20*	5-		IT(100%)	2319, 2186, 133, 426, 1761
^{90}Nb	14.60 h *5*	8+	Q_{EC} 6111 *4*	EC+β+(100%)	1129, 2319, 141, 2186, 133
^{90}Nb(124.67)	18.81 s *6*	4-		IT(100%)	122, 2
^{90}Nb(382.01)	6.19 ms *8*	1+		IT(100%)	257
^{90}Mo	5.67 h *5*	0+	Q_{EC} 2489 *4*	EC+β+(100%)	257, 122, 203, 323, 445
^{90}Tc	8.7 s *2*	1+	Q_{EC} 8960 *240*	EC+β+(100%)	948
^{90}Tc(500)	49.2 s *4*	4,5,6		EC+β+(100%)	
^{90}Ru	13 s *5*	0+	Q_{EC} (5800 *500*)	EC+β+(100%)	1002, 992
^{90}Rh			Q_{EC} (12200 *600*)		
^{91}Se	0.27 s *5*		Q_{β^-}(10600 *500*)	β–(100%), β–n(21% *10*)	
^{91}Br	0.541 s *5*		Q_{β^-} 9802 *45*	β–(100%), β–n(18.3% *13*)	263, 803, 365, 186
^{91}Kr	8.57 s *4*	(5/2+)	Q_{β^-} 6435 *57*	β–(100%)	109, 507, 613, 1109, 1502
^{91}Rb	58.4 s *4*	3/2(-)	Q_{β^-} 5891 *9*	β–(100%)	94, 2564, 3600, 346, 1971
^{91}Sr	9.63 h *5*	5/2+	Q_{β^-} 2707 *6*	β–(100%)	1024, 750, 653, 926, 652
^{91}Y	58.51 d *6*	1/2-	Q_{β^-} 1544.8 *18*	β–(100%)	1205
^{91}Y (555.58)	49.71 m *4*	9/2+		IT(100%), β–(<1.5%)	556
^{91}Zr	11.22% *4*	5/2+	Δ –87891.1 *22*		
^{91}Nb	680 y *13*	9/2+	Q_{EC} 1253.4 *24*	EC+β+(100%)	
^{91}Nb(104.49)	60.86 d *22*	1/2-		IT(93% *4*), EC+β+(7% *4*)	1205
^{91}Mo	15.49 m *1*	9/2+	Q_{EC} 4434 *11*	EC+β+(100%)	1637, 1581, 2632, 3028, 3149
^{91}Mo(653.01)	65.0 s *7*	1/2-		EC+β+(49.9% *12*), IT(50.1% *12*)	1508, 1208, 2241, 1033, 1082
^{91}Tc	3.14 m *2*	(9/2)+	Q_{EC} 6220 *200*	EC+β+(100%)	2451, 1640, 1605, 1565, 1902
^{91}Tc(350)	3.3 m *1*	(1/2)-		EC+β+(100%), IT(<1%)	503, 928, 1328, 1362, 1534
^{91}Ru	9 s *1*	(9/2+)	Q_{EC} 7400 *500*	EC+β+(100%)	
^{91}Ru(0+x)	7.6 s *8*	(1/2-)		EC+β+, ECp, IT	
^{91}Rh			Q_{EC} (9500 *600*)		
^{91}Pd			Q_{EC} (12000 *700*)		
^{92}Se		0+	Q_{β^-}(9400 *600*)		
^{92}Br	0.343 s *15*	(2-)	Q_{β^-} 12205 *48*	β–(100%), β–n(33% *3*)	769, 1446, 1035, 678, 587
^{92}Kr	1.840 s *8*	0+	Q_{β^-} 5987 *10*	β–(100%), β–n(0.033% *3*)	142, 1219, 813, 548, 317
^{92}Rb	4.492 s *20*	0-	Q_{β^-} 8100 *7*	β–(100%), β–n(0.0107% *5*)	815, 2821, 570, 1712, 1385
^{92}Sr	2.71 h *1*	0+	Q_{β^-} 1940 *10*	β–(100%)	1384, 953, 430, 242, 1142
^{92}Y	3.54 h *1*	2-	Q_{β^-} 3639 *9*	β–(100%)	934, 1405, 561, 448, 844
^{92}Zr	17.15% *2*	0+	Δ –88454.6 *21*		
^{92}Nb	3.47×10^{7} y *24*	(7)+	Q_{EC} 2005.6 *18*, Q_{β^-} 357 *4*	EC+β+(100%), β–(<0.05%)	561, 934
^{92}Nb(135.5)	10.15 d *2*	(2)+		EC+β+(100%)	934, 913, 1847, 1132, 561
^{92}Mo	14.84% *4*	0+	Δ –86805 *4*		
^{92}Tc	4.23 m *15*	(8)+	Q_{EC} 7870 *26*	EC+β+(100%)	1509, 773, 330, 148, 244
^{92}Ru	3.65 m *5*	0+	Q_{EC} (4500 *300*)	EC+β+(100%)	214, 259, 135, 47, 867
^{92}Rh			Q_{EC} (11000 *500*)		
^{92}Pd		0+	Q_{EC} (7900 *600*)		
^{93}Br	102 ms *10*	(5/2-)	Q_{β^-}(11000 *300*)	β–(100%), β–n(10%$^{+5}_{-3}$)	117
^{93}Kr	1.286 s *10*	(1/2+)	Q_{β^-} 8600 *100*	β–(100%), β–n(1.95% *11*)	253.4, 324, 267, 252.5, 2350
^{93}Rb	5.84 s *2*	5/2-	Q_{β^-} 7462 *9*	β–(100%), β–n(1.39% *7*)	815, 570, 964, 394, 1778
^{93}Sr	7.423 m *24*	5/2+	Q_{β^-} 4137 *12*	β–(100%)	590, 876, 888, 710, 168
^{93}Y	10.18 h *8*	1/2-	Q_{β^-} 2893 *11*	β–(100%)	267, 947, 1918, 680, 1451
^{93}Y (758.719)	0.82 s *4*	7/2+		IT(100%)	590, 168
^{93}Zr	1.53×10^{6} y *10*	5/2+	Q_{β^-} 91.4 *16*	β–(100%)	31
^{93}Nb	100%	9/2+	Δ –87208.7 *22*		
^{93}Nb(30.82)	16.13 y *14*	1/2-		IT(100%)	31

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{93}Mo	4.0×10^3 y *8*	5/2+	Q_{EC} 405 *4*	EC(100%)	31
^{93}Mo(2424.89)	6.85 h *7*	21/2+		IT(99.88% *1*), EC+β+(0.12% *1*)	950, 689, 541, 385, 573
^{93}Tc	2.75 h *5*	9/2+	Q_{EC} 3200.9 *10*	EC+β+(100%)	1363, 1520, 1477, 1539, 1382
^{93}Tc(391.84)	43.5 m *10*	1/2-		IT(76.6% *11*), EC+β+(23.4% *11*)	2645, 943, 3129, 1492, 1047
^{93}Ru	59.7 s *6*	(9/2)+	Q_{EC} 6337 *85*	EC+β+(100%)	681, 1435, 1016, 1801, 1194
^{93}Ru(734.40)	10.8 s *3*	(1/2)-		IT(22.0% *23*), EC+β+(78.0% *23*), ECp(0.027% *5*)	1396, 1111, 2039, 928, 1023
^{93}Rh		(9/2+)	Q_{EC} (8100 *400*)		
^{93}Pd			Q_{EC} (9500 *600*)		
^{93}Ag					
^{94}Br	70 ms *20*		Q_{β^-}(13300 *500*)	β–(100%), β–n(30% *10*)	
^{94}Kr	0.20 s *1*	0+	Q_{β^-}(7400 *300*)	β–(100%), β–n(5.7% *22*)	629, 765, 219, 359, 186
^{94}Rb	2.702 s *5*	3(-)	Q_{β^-}10291 *10*	β–(100%), β–n(10.4% *4*)	433, 213, 986, 710, 219
^{94}Sr	75.3 s *2*	0+	Q_{β^-}3508 *8*	β–(100%)	1428, 724, 704, 622, 806
^{94}Y	18.7 m *1*	2-	Q_{β^-}4917 *8*	β–(100%)	919, 1139, 551, 1671, 382
^{94}Zr	17.38% *4*	0+	Δ–87266.3 *23*		
^{94}Nb	2.03×10^4 y *16*	(6)+	Q_{EC} 901.4 *22*, Q_{β^-}2045.4 *19*	β–(100%)	871, 703
^{94}Nb(40.902)	6.263 m *4*	3+		IT(99.50% *6*), β–(0.50% *6*)	41
^{94}Mo	9.25% *3*	0+	Δ–88410.3 *18*		
^{94}Tc	293 m *1*	7+	Q_{EC} 4256 *4*	EC+β+(100%)	871, 703, 850, 916, 449
^{94}Tc(75.5)	52.0 m *10*	(2)+		EC+β+(100%), IT(<0.1%)	871, 1869, 1522, 2740, 993
^{94}Ru	51.8 m *6*	0+	Q_{EC} 1587 *13*	EC+β+(100%)	367, 892, 525, 76
^{94}Rh(0+x)	70.6 s *6*	(3+)	Q_{EC} (9600 *400*)	EC+β+(100%), ECp(1.8%)	
^{94}Rh(0+y)	25.8 s *2*	(8+)		EC+β+(100%)	
^{94}Pd	9.0 s *5*	0+	Q_{EC} (6600 *600*)	EC+β+(100%)	558, 724, 55, 798
^{94}Ag	10 ms *calc*	0+	Q_{EC} (13100 *600*)	EC+β+(100%)	
^{94}Ag(0+x)	0.42 s *5*	(9+)		EC+β+(100%), ECp	
^{95}Kr	0.78 s *3*	1/2	Q_{β^-}(9800 *400*)	β–(100%)	
^{95}Rb	377.5 ms *8*	5/2-	Q_{β^-}9279 *19*	β–(100%), β–n(8.73% *20*)	837, 1089, 1309, 845, 504
^{95}Sr	23.90 s *14*	1/2+	Q_{β^-}6087 *8*	β–(100%)	686, 2717, 2933, 2248, 827
^{95}Y	10.3 m *1*	1/2-	Q_{β^-}4453 *8*	β–(100%)	954, 2176, 3576, 1324, 2632
^{95}Zr	64.02 d *5*	5/2+	Q_{β^-}1124.8 *19*	β–(100%)	757, 724, 236
^{95}Nb	34.975 d *7*	9/2+	Q_{β^-}925.6 *5*	β–(100%)	766, 204, 562
^{95}Nb(235.68)	86.6 h *8*	1/2-		β–(5.6% *6*), IT(94.4% *6*)	236
^{95}Mo	15.92% *5*	5/2+	Δ–87708.1 *18*		
^{95}Tc	20.0 h *1*	9/2+	Q_{EC} 1691 *5*	EC+β+(100%)	766, 1074, 948, 870, 604
^{95}Tc(38.89)	61 d *2*	1/2-		EC+β+(96.12% *32*), IT(3.88% *32*)	204, 582, 835, 786, 821
^{95}Ru	1.643 h *14*	5/2+	Q_{EC} 2567 *13*	EC+β+(100%)	336, 1097, 627, 1179, 806
^{95}Rh	5.02 m *10*	(9/2)+	Q_{EC} 5110 *150*	EC+β+(100%)	942, 1352, 678, 1495, 1489
^{95}Rh(543.3)	1.96 m *4*	(1/2)-		EC+β+(12% *5*), IT(88% *5*)	788, 3407, 3824, 4337, 3186
^{95}Pd			Q_{EC} (8200 *400*)		
^{95}Pd(2000)	13.3 s *3*	(21/2+)		EC+β+(>90%), ECp(0.90% *16*), IT(<10%)	146, 312, 756, 1431
^{95}Ag	2.0 s *1*		Q_{EC} (10100 *600*)	EC+β+(100%), ECp	
^{96}Kr		0+	Q_{β^-}(8200 *500*)		
^{96}Rb	0.199 s *3*	2+	Q_{β^-}11740 *27*	β–(100%), β–n(13.8% *9*)	352, 204, 681, 329, 1004
^{96}Sr	1.07 s *1*	0+	Q_{β^-}5387 *15*	β–(100%)	122, 809, 932, 530, 279
^{96}Y	5.34 s *5*	0-	Q_{β^-}7100 *22*	β–(100%)	1750, 2226, 475, 469, 1612
^{96}Y (0+x)	9.6 s *2*	(8+)		β–(~100%)	
^{96}Zr	3.9×10^{19} y *9* 2.80% *2*	0+	Δ–85441 *3*, Q_{β^-}164 *4*	β–β–(100%)	
^{96}Nb	23.35 h *5*	6+	Q_{β^-}3187 *3*	β–(100%)	778, 569, 460, 850, 1200
^{96}Mo	16.68% *5*	0+	Δ–88791.0 *18*		
^{96}Tc	4.28 d *7*	7+	Q_{EC} 2973 *5*, Q_{β^-}254 *10*	EC+β+(100%)	778, 850, 813, 1127, 314
^{96}Tc(34.28)	51.5 m *10*	4+		IT(98.0% *5*), EC+β+(2.0% *5*)	778, 1200, 481, 720, 850
^{96}Ru	5.52% *6*	0+	Δ–86072 *8*		
^{96}Rh	9.90 m *10*	6+	Q_{EC} 6446 *10*	EC+β+(100%)	833, 685, 632, 742, 1228
^{96}Rh(52.0)	1.51 m *2*	3+		IT(60% *5*), EC+β+(40% *5*)	833, 1099, 1692, 685, 808
^{96}Pd	122 s *2*	0+	Q_{EC} 3450 *150*	EC+β+(100%)	125, 762, 500, 1099, 723
^{96}Ag	5.1 s *4*	(8+,9+)	Q_{EC} (11600 *400*)	EC+β+(100%), ECp(8.0% *2*)	1415, 684, 325, 106
^{96}Cd		0+	Q_{EC} (8500 *600*)		
^{97}Kr			Q_{β^-}(10400 *500*)		
^{97}Rb	169.9 ms *7*	3/2(+)	Q_{β^-}10427 *27*	β–(100%), β–n(25.1% *8*)	815, 692, 414, 813, 1507
^{97}Sr	426 ms *5*	1/2+	Q_{β^-}7468 *16*	β–(100%), β–n(0.005% *3*)	1905, 954, 652, 307, 2212
^{97}Y	3.75 s *3*	(1/2-)	Q_{β^-}6688 *11*	β–(100%), β–n(0.055% *4*)	3288, 3401, 1997, 2743, 1291
^{97}Y (667.51)	1.17 s *3*	(9/2)+		β–(100%), IT(<0.7%), β–n(<0.08%)	668
^{97}Y (3523.3)	142 ms *8*	(27/2-)		IT(>80%), β–(<20%)	912, 792, 990, 162, 669
^{97}Zr	16.91 h *5*	1/2+	Q_{β^-}2658.1 *19*	β–(100%)	743, 508, 1148, 355, 602
^{97}Nb	72.1 m *7*	9/2+	Q_{β^-}1933.9 *19*	β–(100%)	658, 1024, 1269, 1516, 719
^{97}Nb(743.35)	52.7 s *18*	1/2-		IT(100%)	743

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{97}Mo	9.55% *3*	5/2+	Δ –87540.8 *18*		
^{97}Tc	2.6×10^{6} y *4*	9/2+	Q_{EC} 320 *4*	EC(100%)	
^{97}Tc(96.56)	90.1 d *10*	1/2-		IT(100%), EC(<0.34%)	97
^{97}Ru	2.9 d *1*	5/2+	Q_{EC} 1108 *9*	EC(100%)	216, 324, 569, 461, 109
^{97}Rh	30.7 m *6*	(9/2)+	Q_{EC} 3523 *35*	EC+β+(100%)	422, 840, 879, 1054, 777
^{97}Rh(258.85)	46.2 m *16*	(1/2)-		EC+β+(94.4% *6*), IT(5.6% *6*)	189, 2246, 422, 1587, 528
^{97}Pd	3.10 m *9*	(5/2+)	Q_{EC} 4800 *300*	EC+β+(100%)	265, 475, 793, 1760, 1494
^{97}Ag	19 s *2*	(9/2+)	Q_{EC} (7000 *500*)	EC+β+(100%)	686, 1294
^{97}Cd(x)3	s^{+4}_{-2}		Q_{EC} (10200 *600*)	EC+β+(100%), ECp	
^{98}Rb	114 ms *5*	(1,0)	Q_{β^-} 12326 *24*	β–(100%), β–n(13.6% *5*), β–2n(0.051% *7*)	167, 141
^{98}Rb(270)	96 ms *3*	(4,5)		β–(100%)	144, 289, 3011, 3031, 1456
^{98}Sr	0.653 s *2*	0+	Q_{β^-} 5823 *10*	β–(100%), β–n(0.18% *2*)	119, 445, 428, 37, 564
^{98}Y	0.548 s *2*	(0)-	Q_{β^-} 8824 *15*	β–(100%), β–n(0.24% *1*)	1223, 2941, 1591, 4450, 3310
^{98}Y (0+x)	2.0 s *2*	(4,5)		β–(90% *10*), IT(<20%), β–n(3.4% *10*)	
^{98}Zr	30.7 s *4*	0+	Q_{β^-} 2250 *20*	β–(100%)	
^{98}Nb	2.86 s *6*	1+	Q_{β^-} 4586 *6*	β–(100%)	787, 1024, 1432, 645, 971
^{98}Nb(84)	51.3 m *4*	(5+)		β–(99.9% *1*), IT(<0.2%)	787, 723, 1169, 834, 335
^{98}Mo	24.13% *7*	0+	Δ –88112.0 *18*		
^{98}Tc	4.2×10^{6} y *3*	(6)+	Q_{EC} 1684 *3*, Q_{β^-} 1796 *7*	β–(100%)	745, 652
^{98}Ru	1.88% *6*	0+	Δ –88224 *6*		
^{98}Rh	8.7 m *2*	(2)+	Q_{EC} 5057 *10*	EC+β+(100%)	652, 745, 1817, 1165, 762
^{98}Rh(0+x)	3.5 m *3*	(5+)		EC+β+(>0%), IT	
^{98}Pd	17.7 m *3*	0+	Q_{EC} 1867 *24*	EC+β+(100%)	112, 662, 107, 68, 174
^{98}Ag	46.7 s *9*	(5+)	Q_{EC} 8420 *150*	EC+β+(100%)	863, 679, 571, 452, 612
^{98}Cd	9.2 s *3*	0+	Q_{EC} (5420 *140*)	EC+β+(100%)	347, 1176, 107, 61, 899
^{98}In			Q_{EC} (13700 *500*)		
^{99}Rb	50.3 ms *7*	(5/2+)	Q_{β^-} 11280 *110*	β–(100%), β–n(20.7% *23*)	144, 289, 1080, 656, 71
^{99}Sr	0.269 s *1*	3/2+	Q_{β^-} 8090 *140*	β–(100%), β–n(0.100% *19*)	125, 536, 1198, 2279, 2239
^{99}Y	1.470 s *7*	(5/2+)	Q_{β^-} 7567 *14*	β–(100%), β–n(1.9% *4*)	122, 724, 536, 576, 130
^{99}Zr	2.1 s *1*	(1/2+)	Q_{β^-} 4558 *15*	β–(100%)	469, 546, 594, 462, 387
^{99}Nb	15.0 s *2*	9/2+	Q_{β^-} 3639 *13*	β–(100%)	138, 98
^{99}Nb(365.29)	2.6 m *2*	1/2-		β–(>96.2%), IT(<3.8%)	365
^{99}Mo	65.94 h *1*	1/2+	Q_{β^-} 1357.2 *10*	β–(100%)	141, 740, 181, 778, 366
^{99}Tc	2.111×10^{5} y *12*	9/2+	Q_{β^-} 293.7 *14*	β–(100%)	90
^{99}Tc(142.6833)	6.01 h *1*	1/2-		IT(99.9963% *6*), β–(0.0037% *6*)	141, 143, 2
^{99}Ru	12.7% *1*	5/2+	Δ –87617 *2*		
^{99}Rh	16.1 d *2*	1/2-	Q_{EC} 2043 *7*	EC+β+(100%)	528, 353, 90, 322, 618
^{99}Rh(64.3)	4.7 h *1*	9/2+		EC+β+(>99.84%), IT(<0.16%)	341, 618, 1261, 937, 90
^{99}Pd	21.4 m *2*	(5/2)+	Q_{EC} 3387 *15*	EC+β+(100%)	136, 264, 673, 1336, 400
^{99}Ag	124 s *3*	(9/2)+	Q_{EC} 5430 *150*	EC+β+(100%)	264, 832, 805, 816, 1532
^{99}Ag(506.1)	10.5 s *5*	(1/2-)		IT(100%)	343, 164
^{99}Cd	16 s *3*	(5/2+)	Q_{EC} (6910 *250*)	EC+β+(100%), ECp(0.17%$^{+11}_{-5}$), ECα(<1×10^{-4}%)	343, 672, 1583, 975, 164
^{99}In			Q_{EC} (8900 *500*)		
^{100}Rb	51 ms *8*		Q_{β^-} (13500 *300*)	β–(100%), β–n(6% *3*), β–2n	144
^{100}Sr	202 ms *3*	0+	Q_{β^-} 7080 *100*	β–(100%), β–n(0.73% *3*)	964, 899, 65, 11, 195
^{100}Y	735 ms *7*	1-,2-	Q_{β^-} 9310 *70*	β–(100%), β–n(0.81% *4*)	122
^{100}Y (0+x)	0.94 s *3*	(3,4,5)		β–(100%)	
^{100}Zr	7.1 s *4*	0+	Q_{β^-} 3335 *25*	β–(100%)	504, 400, 498, 104, 703
^{100}Nb	1.5 s *2*	1+	Q_{β^-} 6245 *25*	β–(100%)	536, 528, 160, 1023, 1502
^{100}Nb(480)	2.99 s *11*	(4+,5+)		β–(100%)	536, 601, 1281, 967, 769
^{100}Mo	1.2×10^{19} y *3* 9.63% *3*	0+	Δ –86184 *6*	β–β–(100%)	
^{100}Tc	15.8 s *1*	1+	Q_{EC} 168 *6*, Q_{β^-} 3202.4 *17*	β–(100%)	540, 591, 1512, 823, 1362
^{100}Ru	12.6% *1*	0+	Δ –89218.8 *20*		
^{100}Rh	20.8 h *1*	1-	Q_{EC} 3630 *20*	EC+β+(100%)	540, 2376, 1553, 823, 1362
^{100}Rh(107.6)	4.6 m *2*	(5+)		IT(~98.3%), EC+β+(~1.7%)	540, 687, 1827, 1536, 262
^{100}Pd	3.63 d *9*	0+	Q_{EC} 361 *23*	EC(100%)	84, 75, 126, 42, 33
^{100}Ag	2.01 m *9*	(5)+	Q_{EC} 7047 *77*	EC+β+(100%)	666, 751, 773, 450, 1054
^{100}Ag(15.52)	2.24 m *13*	(2)+		EC+β+, IT	666, 751, 1694, 2118, 1116
^{100}Cd	49.1 s *5*	0+	Q_{EC} 3876 *67*	EC+β+(100%)	937, 140, 583, 507, 568
^{100}In	6.1 s *9*		Q_{EC} 10200 *400*	EC+β+(100%), ECp	
^{100}Sn	0.94 s^{+54}_{-27}	0+	Q_{EC} (7270 *200*)	EC+β+(100%), ECp(<20%)	
^{101}Rb	32 ms *4*		Q_{β^-} 11810 *110*	β–(100%), β–n(31% *6*)	271, 252, 1092, 1363, 363
^{101}Sr	118 ms *3*	(5/2)	Q_{β^-} 9505 *80*	β–(100%), β–n(2.37% *14*)	128, 1125, 511, 1211, 2694
^{101}Y	448 ms *19*	(5/2+)	Q_{β^-} 8545 *90*	β–(100%), β–n(2.9% *7*)	98, 134, 232, 662, 104
^{101}Zr	2.1 s *3*	(3/2+)	Q_{β^-} 5485 *25*	β–(100%)	119, 206, 912, 2010, 1958

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{101}Nb	7.1 s *3*	+	Q_{β^-}4569 *18*	β–(100%)	276, 157, 14, 441, 480
^{101}Mo	14.61 m *3*	1/2+	Q_{β^-}2824 *24*	β–(100%)	192, 591, 1012, 696, 2032
^{101}Tc	14.22 m *1*	(9/2)+	Q_{β^-}1613 *24*	β–(100%)	307, 545, 127, 184, 531
^{101}Ru	17.0% *1*	5/2+	Δ –87949.6 *20*		
^{101}Rh	3.3 y *3*	1/2-	Q_{EC}541 *17*	EC(100%)	127, 198, 325, 295, 422
^{101}Rh(157.32)	4.34 d *1*	9/2+		EC(92% *2*), IT(8% *2*)	307, 545, 127, 180, 238
^{101}Pd	8.47 h *6*	(5/2+)	Q_{EC}1980 *4*	EC+β+(100%)	296, 590, 270, 24, 566
^{101}Ag	11.1 m *3*	9/2+	Q_{EC}4200 *100*	EC+β+(100%)	261, 588, 667, 1174, 80
^{101}Ag(274.1)	3.10 s *10*	1/2-		IT(100%)	98, 176
^{101}Cd	1.2 m *2*	(5/2+)	Q_{EC}5480 *110*	EC+β+(100%)	98, 1723, 1259, 925, 1417
^{101}In	16 s *3*		Q_{EC}(7300 *300*)	EC+β+(100%), ECp	252, 750, 421, 891
^{101}Sn	3 s *1*		Q_{EC}(8800 *600*)	EC+β+(100%), ECp	
^{102}Rb	37 ms *5*		Q_{β^-}(15100 *500*)	β–(100%), β–n(18% *8*)	
^{102}Sr	69 ms *6*	0+	Q_{β^-}8815 *70*	β–(100%), β–n(5.5% *15*)	244, 150, 94, 254, 1104
^{102}Y (0+y)	0.36 s *4*		Q_{β^-}9850 *70*	β–(100%), β–n(<6.0% *17*)	
^{102}Y (0+x)	0.30 s *1*			β–(100%), β–n(<6.0% *17*)	
^{102}Zr	2.9 s *2*	0+	Q_{β^-}4605 *30*	β–(100%)	600, 535, 65, 157, 136
^{102}Nb(0+x)	1.3 s *2*	1+	Q_{β^-}7210 *35*	β–(100%)	
^{102}Nb(0+y)	4.3 s *4*			β–(100%)	
^{102}Mo	11.3 m *2*	0+	Q_{β^-}1010 *23*	β–(100%)	212, 148, 224, 360, 136
^{102}Tc	5.28 s *15*	1+	Q_{β^-}4530 *9*	β–(100%)	475, 469, 866, 628, 1106
^{102}Tc(0+x)	4.35 m *7*	(4,5)		β–(98% *2*), IT(2% *2*)	
^{102}Ru	31.6% *2*	0+	Δ –89097.9 *20*		
^{102}Rh	207 d *3*	(1-,2-)	Q_{EC}2323 *5*, Q_{β^-}1151 *5*	β–(20% *5*), EC+β+(80% *5*)	475, 628, 1103, 469, 1158
^{102}Rh(140.75)~2.9 y		6(+)		EC+β+(99.77% *3*), IT(0.23% *3*)	475, 631, 697, 767, 1047
^{102}Pd	1.02% *1*	0+	Δ –87926 *3*		
^{102}Ag	12.9 m *3*	5+	Q_{EC}5954 *70*	EC+β+(100%)	557, 719, 1745, 1582, 835
^{102}Ag(9.3)	7.7 m *5*	2+		IT(49% *5*), EC+β+(51% *5*)	557, 1835, 2054, 2160, 3239
^{102}Cd	5.5 m *5*	0+	Q_{EC}2587 *8*	EC+β+(100%)	481, 1037, 505, 415, 116
^{102}In	24 s *4*	(5)	Q_{EC}9300 *400*	EC+β+(100%)	777, 861, 593, 398, 157
^{102}Sn	4.5 s *7*	0+	Q_{EC}(5400 *600*)	EC+β+(100%)	
^{103}Sr			Q_{β^-}(11200 *600*)		
^{103}Y	0.23 s *2*	(5/2+)	Q_{β^-}(9600 *300*)	β–(100%), β–n(8% *3*)	98, 150, 109, 259
^{103}Zr	1.3 s *1*	(5/2-)	Q_{β^-}6945 *85*	β–(100%)	248, 164, 126, 120, 1473
^{103}Nb	1.5 s *2*	(5/2+)	Q_{β^-}5530 *30*	β–(100%)	103, 641, 539, 139, 746
^{103}Mo	67.5 s *15*	(3/2+)	Q_{β^-}3750 *60*	β–(100%)	83, 424, 46, 688, 519
^{103}Tc	54.2 s *8*	5/2+	Q_{β^-}2660 *10*	β–(100%)	346, 136, 563, 210, 343
^{103}Ru	39.26 d *2*	3/2+	Q_{β^-}763.4 *21*	β–(100%)	497, 610, 444, 557, 53
^{103}Ru(238.2)	1.69 ms *7*	11/2-		IT(100%)	211, 213, 3, 25
^{103}Rh	100%	1/2-	Δ –88022 *3*		
^{103}Rh(39.756)	56.12 m *1*	7/2+		IT(100%)	40
^{103}Pd	16.991 d *19*	5/2+	Q_{EC}543.1 *8*	EC(100%)	40, 357, 497, 295, 62
^{103}Ag	65.7 m *7*	7/2+	Q_{EC}2688 *17*	EC+β+(100%)	119, 148, 267, 1274, 532
^{103}Ag(134.44)	5.7 s *3*	1/2-		IT(100%)	134
^{103}Cd	7.3 m *1*	(5/2+)	Q_{EC}4142 *10*	EC+β+(100%)	1462, 1449, 1080, 387, 134
^{103}In	65 s *7*	(9/2+)	Q_{EC}6050 *20*	EC+β+(100%)	188, 720, 740, 202, 917
^{103}Sn	7 s *3*		Q_{EC}(7700 *300*)	EC+β+(100%)	
^{103}Sb			Q_{EC}(11200 *600*), Q_{α}(2700 *700*)		
^{104}Sr		0+	Q_{β^-}(10100 *800*)		
^{104}Y			Q_{β^-}(11800 *600*)		
^{104}Zr	1.2 s *3*	0+	Q_{β^-}(5900 *400*)	β–(100%)	101, 505, 445, 264, 213
^{104}Nb	4.8 s *4*	(1+)	Q_{β^-}8105 *90*	β–(100%), β–n(0.710%)	
^{104}Nb(215)	0.92 s *4*			β–(100%)	192, 368, 620, 836, 478
^{104}Mo	60 s *2*	0+	Q_{β^-}2155 *40*	β–(100%)	69, 70, 36, 55, 46
^{104}Tc	18.3 m *3*	(3+)	Q_{β^-}5603 *46*	β–(100%)	358, 531, 535, 884, 893
^{104}Ru	18.7% *2*	0+	Δ –88091 *4*		
^{104}Rh	42.3 s *4*	1+	Q_{EC}1141 *4*, Q_{β^-}2441 *5*	β–(99.55% *10*), EC+β+(0.45% *10*)	358, 630
^{104}Rh(128.970)	4.34 m *3*	5+		IT(99.87% *1*), β–(0.13% *1*)	51, 97, 78, 32
^{104}Pd	11.14% *8*	0+	Δ –89391 *5*		
^{104}Ag	69.2 m *10*	5+	Q_{EC}4279 *4*	EC+β+(100%)	556, 768, 942, 926, 858
^{104}Ag(6.9)	33.5 m *20*	2+		EC+β+(100%), IT(<0.07%)	556, 1238, 2277, 1782, 786
^{104}Cd	57.7 m *10*	0+	Q_{EC}1136 *11*	EC+β+(100%)	84, 710, 559, 67, 626
^{104}In	1.8 m *2*	(6+)	Q_{EC}7910 *140*	EC+β+(100%)	658, 834, 878, 943, 622
^{104}In(93.5)	15.7 s *5*	(3+)		IT(80%), EC+β+(20%)	94
^{104}Sn	20.8 s *5*	0+	Q_{EC}4515 *60*	EC+β+(100%)	133, 913, 401, 1407, 342
^{104}Sb	0.44 s^{+15}_{-11}		Q_{EC}(12200 *400*), Q_{α}(2400 *500*)	EC+β+(100%), ECp(<7%), p(<1%)	
^{105}Y			Q_{β^-}(11200 *600*)		
^{105}Zr	0.6 s *1*		Q_{β^-}(8500 *400*)	β–(100%)	
^{105}Nb	2.95 s *6*	(5/2+)	Q_{β^-}6485 *70*	β–(100%)	95, 247, 310, 138, 254

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{105}Mo	35.6 s *16*	(5/2-)	Q_{β^-}4950 *45*	β–(100%)	85, 77, 148, 161, 250
^{105}Tc	7.6 m *1*	(3/2-)	Q_{β^-}3640 *55*	β–(100%)	143, 108, 322, 160, 252
^{105}Ru	4.44 h *2*	3/2+	Q_{β^-}1917 *4*	β–(100%)	724, 469, 676, 316, 263
^{105}Rh	35.36 h *6*	7/2+	Q_{β^-}566.7 *25*	β–(100%)	319, 306, 280, 442, 39
^{105}Rh(129.781)	45 s	1/2-		IT(100%)	130
^{105}Pd	22.33% *8*	5/2+	Δ –88414 *5*		
^{105}Ag	41.29 d *7*	1/2-	Q_{EC} 1345 *11*	EC+β+(100%)	345, 280, 645, 443, 64
^{105}Ag(25.465)	7.23 m *16*	7/2+		IT(99.66% *7*), EC+β+(0.34% *7*)	319, 306, 442, 929, 280
^{105}Cd	55.5 m *4*	5/2+	Q_{EC} 2738 *5*	EC+β+(100%)	962, 347, 1302, 607, 1693
^{105}In	5.07 m *7*	(9/2)+	Q_{EC} 4849 *13*	EC+β+(100%)	131, 260, 604, 668, 832
^{105}In(674.1)	48 s *6*	(1/2)-		IT(100%)	674
^{105}Sn	31 s *6*		Q_{EC} 6257 *91*	EC+β+(100%), ECp	
^{105}Sb	1.12 s *16*		Q_{EC} 9440 *180*, Q_α (2200 *300*)	EC+β+, p	
^{106}Y			Q_{β^-}(13300 *900*)		
^{106}Zr		0+	Q_{β^-}(7200 *600*)		
^{106}Nb	1.02 s *5*		Q_{β^-}(9400 *300*)	β–(100%)	172, 351, 714, 725, 539
^{106}Mo	8.4 s *5*	0+	Q_{β^-}3520 *17*	β–(100%)	466, 54, 619, 595, 504
^{106}Tc	35.6 s *6*	(1,2)	Q_{β^-}6547 *11*	β–(100%)	270, 2239, 1969, 2789, 522
^{106}Ru	373.59 d *15*	0+	Q_{β^-}39.40 *21*	β–(100%)	
^{106}Rh	29.80 s *8*	1+	Q_{β^-}3541 *6*	β–(100%)	512, 622, 1050, 616, 873
^{106}Rh(137)	131 m *2*	(6)+		β–(100%)	512, 1046, 717, 451, 616
^{106}Pd	27.33% *3*	0+	Δ –89905 *5*		
^{106}Ag	23.96 m *4*	1+	Q_{EC} 2965 *3*, Q_{β^-}194 *8*	EC+β+(99.5% *5*), β–(<1%)	512, 622, 873, 1050, 616
^{106}Ag(89.66)	8.28 d *2*	6+		EC(100%), EC+β+(<0.1%)	512, 1046, 717, 451, 616
^{106}Cd	1.25% *4*	0+	Δ –87134 *6*		
^{106}In	6.2 m *1*	7+	Q_{EC} 6523 *12*	EC+β+(100%)	633, 861, 998, 1009, 553
^{106}In(28.6)	5.2 m *1*	(3+)		EC+β+(100%)	633, 1715, 861, 1934, 2257
^{106}Sn	115 s *5*	0+	Q_{EC} 3185 *49*	EC+β+(100%)	387, 478, 253, 1190, 712
^{106}Sb		(4+)	Q_{EC} (11100 *300*)		
^{106}Te	60 μs^{+30}_{-10}	0+	Q_{EC} (8300 *500*), Q_α 4293 *9*	α(100%)	
^{107}Zr			Q_{β^-}(9800 *700*)		
^{107}Nb	330 ms *50*		Q_{β^-}(8000 *400*)	β–(100%)	
^{107}Mo	3.5 s *5*		Q_{β^-}6160 *60*	β–(100%)	400, 66, 384, 484, 359
^{107}Tc	21.2 s *2*		Q_{β^-}4820 *85*	β–(100%)	103, 177, 106, 459, 595
^{107}Ru	3.75 m *5*	(5/2)+	Q_{β^-}2940 *120*	β–(100%)	194, 848, 463, 374, 1272
^{107}Rh	21.7 m *4*	7/2+	Q_{β^-}1511 *13*	β–(100%)	303, 392, 312, 348, 322
^{107}Pd	6.5×10^6 y *3*	5/2+	Q_{β^-}33 *3*	β–(100%)	
^{107}Pd(214.9)	21.3 s *5*	11/2-		IT(100%)	215
^{107}Ag	51.839% *7*	1/2-	Δ –88405 *6*		
^{107}Ag(93.13)	44.3 s *2*	7/2+		IT(100%)	93
^{107}Cd	6.50 h *2*	5/2+	Q_{EC} 1417 *4*	EC+β+(100%)	93, 829, 796, 325, 423
^{107}In	32.4 m *3*	9/2+	Q_{EC} 3426 *11*	EC+β+(100%)	205, 506, 321, 1268, 365
^{107}In(678.5)	50.4 s *6*	1/2-		IT(100%)	679
^{107}Sn	2.90 m *5*	(5/2+)	Q_{EC} 5006 *88*	EC+β+(100%)	1129, 679, 1541, 1001, 1808
^{107}Sb		(5/2+)	Q_{EC} (7900 *300*)		
^{107}Te	3.1 ms *1*		Q_{EC} (10100 *400*), Q_α 4008 *5*	α(>70%), EC+β+(<30%)	
^{108}Zr		0+	Q_{β^-}(8600 *900*)		
^{108}Nb	0.19 s *2*	(2)	Q_{β^-}(10600 *500*)	β–(100%), β–n(6.2% *5*)	193, 590, 393, 586, 371
^{108}Mo	1.09 s *2*	0+	Q_{β^-}(4750 *150*)	β–(100%)	268, 241, 86, 372, 391
^{108}Tc	5.17 s *7*	(2+)	Q_{β^-}7720 *50*	β–(100%)	242, 466, 708, 1584, 733
^{108}Ru	4.55 m *5*	0+	Q_{β^-}1361 *59*	β–(100%)	165, 150, 91, 74, 15
^{108}Rh(0+y)	6.0 m *3*	(5+)	Q_{β^-}4510 *110*	β–(100%)	
^{108}Rh(0+x)	16.8 s *5*	1+		β–(100%)	
^{108}Pd	26.46% *9*	0+	Δ –89522 *4*		
^{108}Ag	2.37 m *1*	1+	Q_{EC} 1918 *6*, Q_{β^-}1649 *8*	β–(97.15% *20*), EC+β+(2.85% *20*)	434, 619, 1007, 510, 880
^{108}Ag(109.440)	418 y *21*	6+		EC+β+(91.3% *6*), IT(8.7% *6*)	723, 434, 614
^{108}Cd	0.89% *2*	0+	Δ –89253 *6*		
^{108}In	58.0 m *12*	7+	Q_{EC} 5157 *36*	EC+β+(100%)	875, 633, 243, 1033, 1057
^{108}In(29.75)	39.6 m *7*	2+		EC+β+(100%)	633, 1987, 3452, 1530, 969
^{108}Sn	10.30 m *8*	0+	Q_{EC} 2092 *25*	EC+β+(100%)	396, 273, 669, 169, 104
^{108}Sb	7.0 s *5*	(4+)	Q_{EC} (9500 *210*)	EC+β+(100%), ECp	1206, 905
^{108}Te	2.1 s *1*	0+	Q_{EC} (6800 *300*), Q_α 3445 *4*	EC+β+(51% *4*), α(49% *4*)	
^{108}I	36 ms *6*		Q_{EC} (12900 *400*), Q_α 4099 *50*	α(91% *15*)	
^{109}Nb	0.19 s *3*		Q_{β^-}(9100 *600*)	β–(100%), β–n(31% *5*)	
^{109}Mo	0.53 s *6*		Q_{β^-}(7600 *400*)	β–(100%)	69
^{109}Tc	0.87 s *4*		Q_{β^-}(5990 *200*)	β–(100%), β–n(0.08% *2*)	195, 129, 96, 68.8, 69.1
^{109}Ru	34.5 s *10*	(5/2+)	Q_{β^-}4160 *65*	β–(100%)	206, 226, 1929, 359, 427
^{109}Rh	80 s *2*	7/2+	Q_{β^-}2591 *12*	β–(100%)	327, 426, 178, 291, 249
^{109}Pd	13.7012 h *24*	5/2+	Q_{β^-}1115.9 *20*	β–(100%)	88, 311, 647, 781, 415
^{109}Pd(188.990)	4.696 m *3*	11/2-		IT(100%)	189

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{109}Ag	48.161% *7*	1/2-	Δ –88720 *3*		
^{109}Ag(88.0341)	39.6 s *2*	7/2+		IT(100%)	88
^{109}Cd	462.6 d *4*	5/2+	Q_{EC} 214 *3*	EC(100%)	88
^{109}In	4.2 h *1*	9/2+	Q_{EC} 2020 *6*	EC+β+(100%)	204, 624, 1149, 426, 84
^{109}In(650.1)	1.34 m *7*	1/2-		IT(100%)	650
^{109}In(2101.8)	0.209 s *6*	(19/2+)		IT(100%)	674, 1428, 402, 1026
^{109}Sn	18.0 m *2*	5/2(+)	Q_{EC} 3850 *11*	EC+β+(100%)	1099, 650, 1321, 331, 1911
^{109}Sb	17.0 s *7*	(5/2+)	Q_{EC} 6380 *16*	EC+β+(100%)	925, 1063, 665, 1496, 679
^{109}Te	4.6 s *3*		Q_{EC} 8682 *76*, Q_{α} 3226 *50*	EC+β+(96.1% *13*), α(3.9% *13*), ECp	
^{109}I	100 μs *5*		Q_{EC} 10000 *1700*, Q_{α} 3782 *16*	p(~100%)	
^{110}Nb	0.17 s *2*		Q_{β^-}(12100 *700*)	β–(100%), β–n(40% *8*)	
^{110}Mo	0.30 s *4*	0+	Q_{β^-}(5900 *600*)	β–(100%)	142, 121, 223, 599, 55
^{110}Tc	0.92 s *3*	(1+,2+)	Q_{β^-}(8800 *500*)	β–(100%)	241, 372, 613, 619, 423
^{110}Ru	14.6 s *10*	0+	Q_{β^-}2810 *50*	β–(100%)	112, 166, 116, 415, 54
^{110}Rh(0+x)	3.2 s *2*	1+	Q_{β^-}5400 *220*	β–(100%)	
^{110}Rh(0+y)	28.5 s *15*	(GE 4)		β–(100%)	
^{110}Pd	11.72% *9*	0+	Δ –88350 *11*		
^{110}Ag	24.6 s *2*	1+	Q_{EC} 892 *11*, Q_{β^-}2892.2 *16*	β–(99.70% *6*), EC(0.30% *6*)	374
^{110}Ag(117.59)	249.79 d *20*	6+		β–(98.64% *6*), IT(1.36% *6*)	116, 1
^{110}Cd	12.49% *12*	0+	Δ –90350 *3*		
^{110}In	4.9 h *1*	7+	Q_{EC} 3878 *12*	EC+β+(100%)	658, 885, 937, 707, 642
^{110}In(62.09)	69.1 m *5*	2+		EC+β+(100%)	658, 2130, 2211, 2318, 1126
^{110}Sn	4.11 h *10*	0+	Q_{EC} 637 *19*	EC(100%)	280
^{110}Sb	23.0 s *4*	3+	Q_{EC} (8300 *200*)	EC+β+(100%)	1212, 985, 1244, 827, 909
^{110}Te	18.6 s *8*	0+	Q_{EC} (5260 *210*), Q_{α} 2723 *16*	EC+β+(~100%), α(~0.003%)	895, 606, 219, 108
^{110}I	0.65 s *2*		Q_{EC} (11900 *300*), Q_{α} 3584 *50*	EC+β+(83% *4*), α(17% *4*), ECp(11% *3*), ECα(1.1% *3*)	656
^{110}Xe	~0.2 s	0+	Q_{EC} (8600 *500*), Q_{α} 3885 *14*	EC, α	
^{111}Mo			Q_{β^-}(8800 *600*)		
^{111}Tc	0.30 s *3*		Q_{β^-}(7000 *500*)	β–(100%)	150, 368, 175, 104, 267
^{111}Ru	2.12 s *7*		Q_{β^-}(5500 *400*)	β–(100%)	304, 212, 382, 1516, 844
^{111}Rh	11 s *1*	(7/2+)	Q_{β^-}(3740 *210*)	β–(100%)	275, 412, 230, 789, 123
^{111}Pd	23.4 m *2*	5/2+	Q_{β^-}2188 *41*	β–(100%)	580, 70, 1459, 650, 1388
^{111}Pd(172.18)	5.5 h *1*	11/2-		IT(73% *3*), β–(27% *3*)	172
^{111}Ag	7.45 d *1*	1/2-	Q_{β^-}1036.8 *14*	β–(100%)	342, 245, 97, 620, 622
^{111}Ag(59.82)	64.8 s *8*	7/2+		IT(99.3%), β–(0.7% *2*)	60
^{111}Cd	12.80% *8*	1/2+	Δ –89254 *3*		
^{111}Cd(396.214)	48.54 m *5*	11/2-		IT(100%)	245, 151
^{111}In	2.8047 d *5*	9/2+	Q_{EC} 865 *5*	EC(100%)	245, 171, 151
^{111}In(536.95)	7.7 m *2*	1/2-		IT(100%)	537
^{111}Sn	35.3 m *6*	7/2+	Q_{EC} 2445 *8*	EC+β+(100%)	1153, 1915, 762, 1610, 1543
^{111}Sb	75 s *1*	(5/2+)	Q_{EC} (5100 *200*)	EC+β+(100%)	154, 489, 1033, 755, 1148
^{111}Te	19.3 s *4*		Q_{EC} (7370 *210*), Q_{α} 2660 *110*	EC+β+(100%), ECp	
^{111}I	2.5 s *2*	(5/2+)	Q_{EC} (8500 *300*), Q_{α} 3282 *50*	EC+β+(99.9%), α(~0.1%)	
^{111}Xe	0.74 s *20*		Q_{EC} (10600 *400*), Q_{α} 3719 *50*	EC+β+, α	
^{112}Mo		0+	Q_{β^-}(7100 *800*)		
^{112}Tc	0.28 s *3*		Q_{β^-}(10000 *7000*)	β–(100%)	237, 287, 524, 408, 382
^{112}Ru	1.75 s *7*	0+	Q_{β^-}(3670 *200*)	β–(100%)	327, 245, 82, 588, 460
^{112}Rh(0+x)	2.1 s *3*	1+	Q_{β^-}(6800 *500*)	β–(100%)	
^{112}Rh(0+y)	6.8 s *2*	GE 4		β–(100%)	
^{112}Pd	21.03 h *5*	0+	Q_{β^-}288 *17*	β–(100%)	19
^{112}Ag	3.130 h *9*	2(-)	Q_{β^-}3956 *17*	β–(100%)	618, 1388, 607, 695, 1614
^{112}Cd	24.13% *14*	0+	Δ –90581 *3*		
^{112}In	14.97 m *10*	1+	Q_{EC} 2586 *5*, Q_{β^-}664 *5*	β–(44% *3*), EC+β+(56% *3*)	618, 607, 1253, 851, 1469
^{112}In(156.59)	20.56 m *6*	4+		IT(100%)	157
^{112}Sn	0.97% *1*	0+	Δ –88659 *4*		
^{112}Sb	51.4 s *10*	3+	Q_{EC} 7055 *23*	EC+β+(100%)	1257, 991, 670, 895, 1098
^{112}Te	2.0 m *2*	0+	Q_{EC} 4350 *170*, Q_{α} 2320 *160*	EC+β+(100%)	373, 296, 419, 351, 494
^{112}I	3.42 s *11*		Q_{EC} (10200 *300*), Q_{α} 2987 *50*	EC+β+(100%), α(~0.0012%)	787, 689
^{112}Xe	2.7 s *8*	0+	Q_{EC} (7200 *300*), Q_{α} 3330 *6*	EC+β+(99.2%), $\alpha(0.8\%^{+1}_{-5})$	
^{112}Cs	500 μs *100*		Q_{EC} (13700 *300*), Q_{α} (4130 *210*)	p	
^{113}Mo			Q_{β^-}(10000 *8000*)		
^{113}Tc(0+x)	130 ms *50*		Q_{β^-}(8200 *800*)	β–(100%)	
^{113}Ru(x)	0.80 s *5*		Q_{β^-}(6600 *600*)	β–(100%)	
^{113}Rh	2.80 s *12*		Q_{β^-}(4900 *400*)	β–(100%)	190, 409, 220, 117, 217
^{113}Pd	93 s *5*	(5/2)+	Q_{β^-}3340 *35*	β–(100%)	96, 644, 740, 222, 482
^{113}Pd(0+x)	>100 s				
^{113}Pd(81.1)	0.4 s *1*	(9/2-)		IT(100%)	81
^{113}Ag	5.37 h *5*	1/2-	Q_{β^-}2016 *17*	β–(100%)	299, 259, 316, 672, 681
^{113}Ag(43.5)	68.7 s *16*	7/2+		IT(64% *7*), β–(36% *7*)	44

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{113}Cd	9.3×10^{15} y *19* 12.22% *8*	1/2+	Δ −89050 *3*, Q_{β^-} 316 *3*	β–(100%)	
^{113}Cd(263.59)	14.1 y *5*	11/2-		β–(99.86%), IT(0.14%)	264
^{113}In	4.3% *2*	9/2+	Δ −89366 *3*		
^{113}In(391.691)	1.6582 h *6*	1/2-		IT(100%)	392
^{113}Sn	115.09 d *4*	1/2+	Q_{EC} 1036 *3*	EC+β+(100%)	392, 255, 638, 383, 647
^{113}Sn(77.389)	21.4 m *4*	7/2+		IT(91.1% *23*), EC+β+(8.9% *23*)	77
^{113}Sb	6.67 m *7*	5/2+	Q_{EC} 3917 *22*	EC+β+(100%)	498, 332, 88, 941, 936
^{113}Te	1.7 m *2*	(7/2+)	Q_{EC} (6100 *200*)	EC+β+(100%)	814, 1018, 1181, 645, 1257
^{113}I (x)	6.6 s *2*		Q_{EC} (7190 *210*), Q_α 2706 *50*	EC+β+(100%), ECα, α(3.310×10^{-7}%)	
^{113}Xe(x)	2.74 s *8*		Q_{EC} 9070 *100*, Q_α 3095 *50*	EC+β+(99.965%), α(0.035%), ECp(4.2%), ECα	
^{113}Cs	17 μs *2*		Q_{EC} 10390 *180*, Q_α 3484 *7*	p(~100%)	
^{114}Tc			Q_{β^-}(11100 *700*)		
^{114}Ru	0.53 s *6*	0+	Q_{β^-}(4800 *200*)	β–(100%)	127, 128, 179, 53, 88
^{114}Rh	1.85 s *5*	1+	Q_{β^-}(7900 *300*)	β–(100%)	333, 362, 694, 783, 539
^{114}Rh(0+x)	1.85 s *5*	(GE 4)		β–(100%)	
^{114}Pd	2.42 m *6*	0+	Q_{β^-} 1451 *25*	β–(100%)	232, 127, 359, 137, 222
^{114}Ag	4.6 s *1*	1+	Q_{β^-} 5076 *26*	β–(100%)	558, 576, 1301, 1995, 651
^{114}Ag(199)	1.50 ms *5*	(LE 6+)		IT(100%)	73, 47, 44, 35
^{114}Cd	28.73% *28*	0+	Δ −90021 *3*		
^{114}In	71.9 s *1*	1+	Q_{EC} 1452 *3*, Q_{β^-} 1988.7 *7*	β–(99.50% *15*), EC+β+(0.50% *15*)	558, 576, 747
^{114}In(190.29)	49.51 d *1*	5+		IT(96.75% *24*), EC+β+(3.25% *24*)	725, 558
^{114}In(501.93)	43.1 ms *6*	8-		IT(100%)	312, 190
^{114}Sn	0.65% *1*	0+	Δ −90558 *3*		
^{114}Sb	3.49 m *3*	3+	Q_{EC} 5880 *200*	EC+β+(100%)	1300, 888, 327, 717, 975
^{114}Te	15.2 m *7*	0+	Q_{EC} (2800 *300*)	EC+β+(100%)	90, 1897, 727, 245, 1417
^{114}I	2.1 s *2*	1+	Q_{EC} (9100 *400*), Q_α (2300 *400*)	EC+β+(100%), ECp	709, 683, 1086, 1091, 2299
^{114}I (265.9)	6.2 s *5*	(7)		EC+β+, IT	709, 683, 775, 636, 1304
^{114}Xe	10.0 s *4*	0+	Q_{EC} (5900 *400*), Q_α (2920 *200*)	EC+β+(100%)	309, 162, 103
^{114}Cs	0.57 s *2*	(1+)	Q_{EC} (12400 *400*), Q_α 3357 *50*	EC+β+(~100%), α(0.018% *6*), ECp(7% *2*), ECα(0.16% *6*)	31, 122
^{114}Ba	0.43 s^{+30}_{-15}	0+	Q_{EC} (8900 *500*), Q_α (3600 *200*)	EC+β+(~100%), α, ^{12}C($\sim3\times10^{-5}$%)	
^{115}Tc			Q_{β^-}(9300 *900*)		
^{115}Ru	0.40 s *10*		Q_{β^-}(7600 *800*)	β–(100%), β–n	
^{115}Rh	0.99 s *5*	(7/2+)	Q_{β^-} 6000 *500*	β–(100%)	128, 126, 297, 165, 180
^{115}Pd	25 s *2*	(5/2+)	Q_{β^-} 4584 *50*	β–(100%)	343, 304, 397, 556, 373
^{115}Pd(89.3)	50 s *3*	(11/2-)		β–(92.0% *20*), IT(8.0% *20*)	89
^{115}Ag	20.0 m *5*	1/2-	Q_{β^-} 3103 *35*	β–(100%)	229, 213, 473, 649, 132
^{115}Ag(41.1)	18.0 s *7*	7/2+		β–(79.0% *3*), IT(21.0% *3*)	41
^{115}Cd	53.46 h *10*	1/2+	Q_{β^-} 1446 *4*	β–(100%)	336, 528, 492, 261, 231
^{115}Cd(181.0)	44.6 d *3*	11/2-		β–(100%)	934, 1291, 484, 1133, 158
^{115}In	4.41×10^{14} y *25* 95.7% *2*	9/2+	Δ −89537 *4*, Q_{β^-} 496 *4*	β–(100%)	
^{115}In(336.24)	4.486 h *4*	1/2-		IT(95.0% *7*), β–(5.0% *7*)	336
^{115}Sn	0.34% *1*	1/2+	Δ −90033 *3*		
^{115}Sb	32.1 m *3*	5/2+	Q_{EC} 3030 *20*	EC+β+(100%)	497, 489, 1237, 1634, 987
^{115}Te	5.8 m *2*	7/2+	Q_{EC} 4640 *100*	EC+β+(100%)	724, 1381, 1327, 1099, 657
^{115}Te(20)	6.7 m *4*	(1/2)+		EC+β+(<100%), IT	770, 724, 1072, 1504, 1279
^{115}I	1.3 m *2*	(5/2+)	Q_{EC} (5900 *500*)	EC+β+(100%)	709, 460, 284, 275
^{115}Xe	18 s *4*	(5/2+)	Q_{EC} (8000 *500*), Q_α (2620 *250*)	EC+β+(100%), ECp(0.34% *6*), ECα(0.0003% *1*)	
^{115}Cs	1.4 s *8*		Q_{EC} (8800 *500*), Q_α (2900 *300*)	EC+β+(100%), ECp(~0.07%)	
^{115}Ba	0.4 s *2*		Q_{EC} (11000 *700*), Q_α (3200 *700*)	EC+β+(100%)	
^{116}Ru		0+	Q_{β^-}(6000 *900*)		
^{116}Rh(0+x)	0.68 s *6*	1+	Q_{β^-}(8900 *500*)	β–(100%)	
^{116}Rh(0+y)	0.9 s *4*	(5,6,7)		β–(100%)	
^{116}Pd	11.8 s *4*	0+	Q_{β^-} 2607 *30*	β–(100%)	115, 178, 101, 91, 279
^{116}Ag	2.68 m *10*	(2)-	Q_{β^-} 6152 *47*	β–(100%)	514, 2478, 700, 1213, 2703
^{116}Ag(81.9)	8.6 s *3*	(5+)		IT(6.0% *15*), β–(94.0% *15*)	82
^{116}Cd	7.49% *12*	0+	Δ −88720 *3*		
^{116}In	14.10 s *3*	1+	Q_{EC} 470 *5*, Q_{β^-} 3275 *4*	β–(>99.94%), EC(<0.06%)	1294, 463, 1252, 2112, 1497
^{116}In(127.267)	54.29 m *17*	5+		β–(100%)	1294, 1097, 417, 2112, 819
^{116}In(289.660)	2.18 s *4*	8-		IT(100%)	162
^{116}Sn	14.53% *1*	0+	Δ −91525 *3*		
^{116}Sb	15.8 m *8*	3+	Q_{EC} 4707 *5*	EC+β+(100%)	1294, 932, 2225, 2844, 1550
^{116}Sb(383)	60.3 m *6*	8-		EC+β+(100%)	1294, 973, 543, 407, 136
^{116}Te	2.49 h *4*	0+	Q_{EC} 1512 *92*	EC+β+(100%)	94, 629, 103, 638, 1055

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{116}I	2.91 s *15*	1+	Q_{EC} 7750 *110*	EC+β+(100%)	679, 540, 1402, 959, 862
^{116}Xe	59 s *2*	0+	Q_{EC} (4660 *200*)	EC+β+(100%)	105, 311, 248, 192, 413
^{116}Cs(0+x)3.84 s *16*		>4+	Q_{EC} (10400 *400*), Q_{α} (2200 *400*)	EC+β+(100%), ECp(0.44% *14*), ECα(0.08% *2*)	
^{116}Cs(0+y) 0.70 s *4*		(1+)		EC+β+(100%), ECp(0.28% *7*), ECα(0.049% *25*)	
^{116}Ba	0.3 s *2*	0+	Q_{EC} (8200 *600*), Q_{α} (3200 *500*)	EC+β+(100%)	
^{117}Ru			Q_{β^-}(8790 *100*)		
^{117}Rh	0.44 s *4*	(7/2+)	Q_{β^-}(7000 *700*)	β–(100%)	132, 97, 35, 482
^{117}Pd	4.3 s *3*	(5/2+)	Q_{β^-}(5700 *300*)	β–(100%)	248, 650, 324, 626, 630
^{117}Pd(203.2) 19.1 ms *7*		(11/2-)		IT(100%)	169, 35, 97, 132, 72
^{117}Ag	72.8 s^{+20}_{-7}	(1/2-)	Q_{β^-}4160 *50*	β–(100%)	135, 338, 157, 426, 312
^{117}Ag(28.6) 5.34 s *5*		(7/2+)		β–(94.0% *15*), IT(6.0% *15*)	29
^{117}Cd	2.49 h *4*	1/2+	Q_{β^-}2517 *6*	β–(100%)	273, 1303, 344, 1577, 434
^{117}Cd(136.4) 3.36 h *5*		(11/2)-		β–(100%)	1997, 1066, 564, 1433, 1029
^{117}In	43.2 m *3*	9/2+	Q_{β^-}1455 *5*	β–(100%)	553, 159, 397, 156
^{117}In(315.302) 116.2 m *3*		1/2-		β–(52.9% *15*), IT(47.1% *15*)	315
^{117}Sn	7.68% *7*	1/2+	Δ–90398 *3*		
^{117}Sn(314.58) 13.60 d *4*		11/2-		IT(100%)	159, 156, 314
^{117}Sb	2.80 h *1*	5/2+	Q_{EC} 1757 *9*	EC+β+(100%)	159, 861, 1005, 1021.0, 1020.6
^{117}Te	62 m *2*	1/2+	Q_{EC} 3535 *17*	EC+β+(100%)	720, 1716, 2300, 1091, 924
^{117}Te(296+x) 103 ms *3*		11/2-		IT(100%)	
^{117}I	2.22 m *4*	(5/2)+	Q_{EC} 4670 *69*	EC+β+(100%)	326, 274, 662, 684, 639
^{117}Xe	61 s *2*	5/2(+)	Q_{EC} 6440 *180*	EC+β+(100%), ECp(0.0029% *6*)	679
^{117}Cs	8.4 s *6*	(9/2+)	Q_{EC} 7520 *190*, Q_{α} 2228 *76*	EC+β+(100%)	205, 30, 206, 160, 222
^{117}Cs(150) 6.5 s *4*		(3/2+)		EC+β+(100%)	
^{117}Ba	1.75 s *7*	(3/2)	Q_{EC} (9500 *700*), Q_{α} (2700 *700*)	EC+β+(100%), ECp, ECα	
^{117}La			Q_{EC} (10400 *1100*), Q_{α} (2700 *900*)		
^{118}Ru		0+	Q_{β^-}(7100 *1100*)		
^{118}Rh			Q_{β^-}(9700 *700*)		
^{118}Pd	1.9 s *1*	0+	Q_{β^-}4100 *200*	β–(100%)	125.4, 125.4, 224, 152, 380
^{118}Ag	3.76 s *15*	(1)-	Q_{β^-}7143 *61*	β–(100%)	488, 677, 2789, 3224, 2778
^{118}Ag(127.63) 2.0 s *2*		(4)+		β–(59%), IT(41%)	128
^{118}Cd	50.3 m *2*	0+	Q_{β^-}521 *22*	β–(100%)	
^{118}In	5.0 s *5*	1+	Q_{β^-}4423 *8*	β–(100%)	1230, 529, 1174, 813, 1908
^{118}In(60) 4.45 m *5*		5+		β–(100%)	1230, 1051, 683, 446, 1259
^{118}In(200) 8.5 s *3*		8-		β–(1.4% *3*), IT(98.6% *3*)	138
^{118}Sn	24.23% *11*	0+	Δ–91653 *3*		
^{118}Sb	3.6 m *1*	1+	Q_{EC} 3657 *3*	EC+β+(100%)	1230, 1267, 529, 827, 1098
^{118}Sb(250) 5.00 h *2*		8-		EC+β+(100%)	1230, 254, 1051, 41, 1092
^{118}Te	6.00 d *2*	0+	Q_{EC} 273 *16*	EC(100%)	
^{118}I	13.7 m *5*	2-	Q_{EC} 7033 *77*	EC+β+(100%)	606, 545, 601, 1339, 876
^{118}I (104.0+x) 8.5 m *5*		(7-)		EC+β+(<100%), IT(>0%)	
^{118}Xe	3.8 m *9*	0+	Q_{EC} 3000 *1000*	EC+β+(100%)	54, 60, 120, 151, 274
^{118}Cs	14 s *2*	2	Q_{EC} 9300 *1000*	EC+β+(100%), ECp(<4.2×10^{-2}% *6*), ECα(<2.4×10^{-3}% *4*)	337, 473, 587, 591, 1228
^{118}Cs(0+x) 17 s *3*		(7-)		EC+β+(100%), ECp(<4.2×10^{-2}% *6*), ECα(<2.4×10^{-3}% *4*)	
^{118}Ba	5.5 s *2*	0+	Q_{EC} (6400 *500*), Q_{α} (2500 *500*)	EC+β+(100%)	
^{118}La			Q_{EC} (12200 *900*), Q_{α} (2400 *900*)		
^{119}Rh			Q_{β^-}(8100 *900*)		
^{119}Pd(x)0.92 s *13*			Q_{β^-}(6500 *300*)	β–(100%)	
^{119}Ag(0+x)2.1 s *1*		(7/2+)	Q_{β^-}5350 *40*	β–(100%)	
^{119}Ag(0+y) 6.0 s *5*		(1/2-)		β–(100%)	
^{119}Cd	2.69 m *2*	3/2+	Q_{β^-}3797 *80*	β–(100%)	293, 343, 1610, 1764, 1317
^{119}Cd(146.53) 2.20 m *2*		(11/2-)		β–(100%)	1025, 2021, 721, 1204, 1102
^{119}In	2.4 m *1*	9/2+	Q_{β^-}2364 *8*	β–(100%)	763, 24, 697, 1215, 66
^{119}In(311.37) 18.0 m *3*		1/2-		β–(94.4% *15*), IT(5.6% *15*)	311
^{119}Sn	8.59% *4*	1/2+	Δ–90067 *3*		
^{119}Sn(89.531) 293.1 d *7*		11/2-		IT(100%)	24, 25, 66
^{119}Sb	38.19 h *22*	5/2+	Q_{EC} 594 *8*	EC(100%)	24
^{119}Sb(2841.1) 0.85 s *9*		(25/2+)		IT(100%)	288, 948, 237, 154, 1213
^{119}Te	16.03 h *5*	1/2+	Q_{EC} 2293 *2*	EC+β+(100%)	644, 700, 1750, 1413, 1177
^{119}Te(260.96) 4.70 d *4*		11/2-		EC+β+(100%), IT(<0.008%)	154, 1213, 271, 1137, 913
^{119}I	19.1 m *4*	5/2+	Q_{EC} 3514 *63*	EC+β+(100%)	258, 636, 321, 557, 63
^{119}Xe	5.8 m *3*	(5/2+)	Q_{EC} 5010 *110*	EC+β+(100%)	232, 99, 462, 208, 87
^{119}Cs	43.0 s *2*	9/2+	Q_{EC} 6350 *120*	EC+β+(100%)	176, 225, 258, 259, 668
^{119}Cs(0+x) 30.4 s *1*		3/2(+)		EC+β+(100%)	
^{119}Ba	5.4 s *3*	(5/2+)	Q_{EC} 8100 *1000*	EC+β+(100%), ECp(<25% *2*)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{119}La			Q_{EC} (9300 *1200*), Q_α (2300 *800*)		
^{119}Ce			Q_{EC} (11000 *1100*), Q_α (2300 *1100*)		
^{120}Rh			Q_{β^-} (10900 *900*)		
^{120}Pd	0.5 s *1*	0+	Q_{β^-} (4900 *400*)	β–(100%)	158, 90, 102, 53, 595
^{120}Ag	1.23 s *3*	(3+)	Q_{β^-} 8325 *71*	β–(100%)	506, 698, 817, 1323, 1330
^{120}Ag(203)	0.32 s *4*	(6-)		β–(~63%), IT(~37%)	203
^{120}Cd	50.80 s *21*	0+	Q_{β^-} 1760 *44*	β–(100%)	
^{120}In	3.08 s *8*	1+	Q_{β^-} 5370 *40*	β–(100%)	1171, 2040, 704, 2390, 1184
^{120}In(0+x)	46.2 s *8*	(3,4,5)+		β–(100%)	
^{120}In(0+y)	47.3 s *5*	(8-)		β–(100%)	
^{120}Sn	32.59% *10*	0+	Δ –91103.3 *25*		
^{120}Sb	15.89 m *4*	1+	Q_{EC} 2681 *7*, Q_{β^-} 982 *13*	EC+β+(100%)	1171, 704, 989
^{120}Sb(0+x)	5.76 d *2*	8-		EC+β+(100%)	
^{120}Te	0.096% *2*	0+	Δ –89405 *10*		
^{120}I	81.0 m *6*	2-	Q_{EC} 5615 *15*	EC+β+(100%)	560, 1523, 641, 601, 2455
^{120}I (0+x)	53 m *4*	4 TO 8		EC+β+(100%)	
^{120}Xe	40 m *1*	0+	Q_{EC} 1960 *40*	EC+β+(100%)	25, 73, 178, 763, 176
^{120}Cs(0+x)	64 s *3*	2	Q_{EC} 7942 *45*	EC+β+(100%)	
^{120}Cs(0+y)	57 s *6*			EC+β+(100%), ECp(7×10^{-6}% *3*), ECα(2.0×10^{-5}% *4*)	
^{120}Ba	32 s *5*	0+	Q_{EC} 5000 *300*	EC+β+(100%)	182, 51
^{120}La(x)	2.8 s *2*		Q_{EC} (11200 *700*), Q_α (2400 *700*)	EC+β+(100%)	
^{120}Ce		0+	Q_{EC} (7980 *100*), Q_α (2200 *900*)		
^{121}Rh			Q_{β^-} (9200 *1000*)		
^{121}Pd			Q_{β^-} (7800 *500*)		
^{121}Ag	0.78 s *1*	(7/2+)	Q_{β^-} 6400 *120*	β–(100%), β–n(0.080% *13*)	315, 353, 501, 1195, 1510
^{121}Cd	13.5 s *3*	(3/2+)	Q_{β^-} 4780 *80*	β–(100%)	325, 1040, 350, 1483, 1315
^{121}Cd(214.89)	8.3 s *8*	(11/2-)		β–(100%)	2059, 1021, 988, 1181, 2365
^{121}In	23.1 s *6*	9/2+	Q_{β^-} 3365 *27*	β–(100%)	926, 262, 657, 919, 869
^{121}In(313.69)	3.88 m *10*	1/2-		β–(98.8% *2*), IT(1.2% *2*)	314
^{121}Sn	27.06 h *4*	3/2+	Q_{β^-} 390.1 *21*	β–(100%)	
^{121}Sn(6.30)	55 y *5*	11/2-		IT(77.6% *20*), β–(22.4% *20*)	6
^{121}Sb	57.36% *8*	5/2+	Δ –89592.9 *23*		
^{121}Te	16.78 d *35*	1/2+	Q_{EC} 1036 *25*	EC+β+(100%)	573, 508, 470, 66, 37
^{121}Te(293.98)	154 d *7*	11/2-		IT(88.6% *11*), EC+β+(11.4% *11*)	1102, 37, 998, 910, 947
^{121}I	2.12 h *1*	5/2+	Q_{EC} 2269 *26*	EC+β+(100%)	212, 532, 599, 475, 320
^{121}Xe	40.1 m *20*	5/2(+)	Q_{EC} 3745 *27*	EC+β+(100%)	253, 133, 445, 311, 96
^{121}Cs	155 s *4*	3/2(+)	Q_{EC} 5400 *20*	EC+β+(100%)	154, 240, 427, 179, 196
^{121}Cs(68.5)	122 s *3*	9/2(+)		EC+β+(83%), IT(17%)	179, 196, 460, 235, 280
^{121}Ba	29.7 s *15*	5/2(+)	Q_{EC} 6800 *300*	EC+β+(100%), ECp(0.02% *1*)	112, 99, 211, 111, 98
^{121}La	5.3 s *2*		Q_{EC} (7900 *600*)	EC+β+(100%), ECp	139, 134, 98, 213, 240
^{121}Ce			Q_{EC} (9900 *900*), Q_α (2060 *100*)		
^{121}Pr	1.4 s *8*		Q_{EC} (10900 *1100*), Q_α (2600 *1200*)	EC+β+(100%), ECp	
^{122}Pd		0+	Q_{β^-} (6000 *500*)		
^{122}Ag	0.48 s *8*	(3+)	Q_{β^-} (9100 *300*)	β–(100%), β–n	569, 760, 650, 798, 1368
^{122}Ag(0+x)	1.5 s *5*			β–(100%)	
^{122}Cd	5.24 s *3*	0+	Q_{β^-} (3000 *210*)	β–(100%)	
^{122}In	1.5 s *3*	1+	Q_{β^-} 6369 *50*	β–(100%)	1141, 2759, 1013, 2066, 1390
^{122}In(0+x)	10.3 s *6*	5+		β–(100%)	
^{122}In(200)	10.8 s *4*	8-		β–(100%)	1141, 1002, 104, 163, 1122
^{122}Sn	4.63% *3*	0+	Δ –89945 *3*		
^{122}Sb	2.7238 d *2*	2-	Q_{EC} 1616 *3*, Q_{β^-} 1982.5 *20*	β–(97.59% *12*), EC+β+(2.41% *12*)	1141
^{122}Sb(163.5591)	4.191 m *3*	(8)-		IT(100%)	61, 76, 26
^{122}Te	2.603% *4*	0+	Δ –90311.1 *19*		
^{122}I	3.63 m *6*	1+	Q_{EC} 4234 *5*	EC+β+(100%)	564, 693, 793, 684, 1747
^{122}Xe	20.1 h *1*	0+	Q_{EC} 890 *88*	EC(100%)	350, 149, 417, 91, 187
^{122}Cs	21.0 s *7*	1+	Q_{EC} 7055 *86*	EC+β+(100%)	331, 512, 818, 843, 497
^{122}Cs(76)	3.70 m *11*	8-		EC+β+(100%)	331, 497, 639, 1098, 560
^{122}Cs(127.0)	0.36 s *2*	(5)-		IT(100%)	81, 46
^{122}Ba	1.95 m *15*	0+	Q_{EC} (3900 *300*)	EC+β+(100%)	551, 389, 231, 66, 332
^{122}La	8.7 s *7*		Q_{EC} (9700 *600*)	EC+β+(100%), ECp	703, 972, 940, 373, 196
^{122}Ce			Q_{EC} (6800 *800*)		
^{122}Pr			Q_{EC} (12710 *100*), Q_α (2300 *1100*)		
^{123}Pd			Q_{β^-} (8700 *700*)		
^{123}Ag	0.309 s *15*	(7/2+)	Q_{β^-} (7400 *300*)	β–(100%), β–n(55% *2*)	264, 410, 591, 116, 124
^{123}Cd	2.10 s *2*	(3/2)+	Q_{β^-} 6115 *33*	β–(100%)	371, 1052, 1438, 1843, 1695
^{123}Cd(316.52)	1.82 s *3*	(11/2-)		β–(100%)	1166, 1027, 2103, 2602, 935
^{123}In	5.98 s *6*	9/2+	Q_{β^-} 4394 *24*	β–(100%)	1131, 1020, 619, 846, 1382
^{123}In(327.21)	47.8 s *5*	1/2-		β–(100%)	126, 3234, 1170, 3127, 896
^{123}Sn	129.2 d *4*	11/2-	Q_{β^-} 1403 *3*	β–(100%)	1089, 1030, 1021, 160, 1337
^{123}Sn(24.6)	40.06 m *1*	3/2+		β–(100%)	160, 381, 542, 553, 171

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{123}Sb	42.64% *8*	7/2+	Δ –89222.5 *20*		
^{123}Te	>1×10^{13} y	1/2+	Δ –89169.2 *18*, Q_{EC} 53.3 *18*	EC(100%)	
	0.908% *2*				
^{123}Te(247.55) 119.7 d *1*		11/2-		IT(100%)	159, 88, 248
^{123}I	13.27 h *8*	5/2+	Q_{EC} 1234 *3*	EC(100%)	159, 529, 440, 539, 505
^{123}Xe	2.08 h *2*	(1/2)+	Q_{EC} 2676 *15*	EC+β+(100%)	149, 178, 330, 1093, 900
^{123}Cs	5.94 m *4*	1/2+	Q_{EC} 4210 *20*	EC+β+(100%)	97, 597, 83, 307, 611
^{123}Cs(156.74) 1.64 s *12*		(11/2)-		IT(100%)	95, 64, 62, 31
^{123}Ba	2.7 m *4*	5/2+	Q_{EC} (5500 *300*)	EC+β+(100%)	95, 124, 31, 116, 93
^{123}La	17 s *3*		Q_{EC} (6900 *500*)	EC+β+(100%)	93, 937, 154, 121, 110
^{123}Ce	3.2 s *2*	(5/2)	Q_{EC} (8600 *600*)	EC+β+(100%), ECp	
^{123}Pr			Q_{EC} (9700 *900*), Q_{α} (2210 *100*)		
^{124}Ag	0.172 s *5*		Q_{β^-}(10100 *400*)	β–(100%), β–n(>0.1%)	613, 772, 461, 539, 755
^{124}Cd	1.25 s *2*	0+	Q_{β^-}4166 *39*	β–(100%)	180, 63, 143, 37
^{124}In	3.11 s *10*	3+	Q_{β^-}7360 *49*	β–(100%)	1132, 3214, 998, 1471, 1315
^{124}In(50) 3.7 s *2*		(8-)		β–(100%)	1132, 970, 1073, 103, 1360
^{124}Sn	5.79% *5*	0+	Δ –88236.1 *14*		
^{124}Sb	60.20 d *3*	3-	Q_{EC} 617.5 *21*, Q_{β^-}2904.5 *15*	β–(100%)	603, 1691, 723, 646, 2091
^{124}Sb(10.8627) 93 s *5*		5+		IT(75% *5*), β–(25% *5*)	11
^{124}Sb(36.8440) 20.2 m *2*		(8)-		IT(100%)	11, 26
^{124}Te	4.816% *6*	0+	Δ –90523.1 *15*		
^{124}I	4.1760 d *3*	2-	Q_{EC} 3159.6 *19*, Q_{β^-}294 *3*	EC+β+(100%)	603, 1691, 723, 1509, 1376
^{124}Xe	>1.6×10^{14} y	0+	Δ –87657.5 *20*	ECEC(100%)	
	0.10% *1*				
^{124}Cs	30.8 s *5*	1+	Q_{EC} 5915 *12*	EC+β+(100%)	354, 915, 493, 847, 1628
^{124}Cs(462.55) 6.3 s *2*		(7)+		IT(100%)	212, 90, 97, 189, 58
^{124}Ba	11.0 m *5*	0+	Q_{EC} 2648 *18*	EC+β+(100%)	170, 189, 1217, 253, 212
^{124}La(0+x)29 s *1*			Q_{EC} (8800 *300*)	EC+β+(100%)	
^{124}La(0+y)<1 s				EC+β+(100%)	
^{124}Ce	6 s *2*	0+	Q_{EC} (5600 *600*)	EC+β+(100%)	560, 544, 253, 134, 120
^{124}Pr	1.2 s *2*		Q_{EC} (11600 *800*), Q_{α} (2100 *800*)	EC+β+(100%), ECp	166, 113, 70
^{125}Ag	166 ms *7*		Q_{β^-}(8700 *400*)	β–(100%)	
^{125}Cd	0.65 s *2*	(3/2+)	Q_{β^-}7122 *62*	β–(100%)	436, 1099, 2147, 1701, 1585
^{125}Cd(49) 0.57 s *9*		(11/2-)		β–(100%)	1028, 1173, 737, 2392, 2642
^{125}In	2.36 s *4*	9/2(+)	Q_{β^-}5418 *30*	β–(100%)	1335, 1032, 618, 745, 937
^{125}In(360.12) 12.2 s *2*		1/2(-)		β–(100%)	188
^{125}Sn	9.64 d *3*	11/2-	Q_{β^-}2363 *3*	β–(100%)	1067, 1089, 822, 916, 2002
^{125}Sn(27.50) 9.52 m *5*		3/2+		β–(100%)	332, 1404, 590, 1484, 643
^{125}Sb	2.7582 y *11*	7/2+	Q_{β^-}766.7 *21*	β–(100%)	428, 601, 636, 463, 176
^{125}Te	7.139% *6*	1/2+	Δ –89027.8 *19*		
^{125}Te(144.795) 57.40 d *15*		11/2-		IT(100%)	35, 109, 145
^{125}I	59.408 d *8*	5/2+	Q_{EC} 185.77 *6*	EC(100%)	35
^{125}Xe	16.9 h *2*	(1/2)+	Q_{EC} 1653 *3*	EC+β+(100%)	188, 243, 55, 454, 847
^{125}Xe(252.8) 57 s *1*		(9/2)-		IT(100%)	112, 141
^{125}Cs	45 m *1*	(1/2+)	Q_{EC} 3099 *8*	EC+β+(100%)	526, 112, 412, 712, 600
^{125}Ba	3.5 m *4*	1/2(+)	Q_{EC} 4560 *250*	EC+β+(100%)	78, 141, 85, 55, 108
^{125}La	76 s *6*	(11/2-)	Q_{EC} (5600 *400*)	EC+β+(100%)	68, 44, 985, 1241, 958
^{125}Ce	9.0 s *6*	(5/2+)	Q_{EC} (7300 *500*)	EC+β+(100%), ECp	577, 422, 230
^{125}Pr	3.3 s *7*		Q_{EC} (8700 *600*), Q_{α} (2100 *700*)	EC+β+(100%)	180, 146, 136
^{126}Ag	107 ms *12*		Q_{β^-}(11300 *400*)	β–(100%)	
^{126}Cd	0.506 s *7*	0+	Q_{β^-}5486 *36*	β–(100%)	260, 428, 688, 555, 366
^{126}In	1.60 s *10*	3(+)	Q_{β^-}8207 *39*	β–(100%)	1141, 3345, 970, 3887, 909
^{126}In(102) 1.64 s *5*		7-,8-,9-		β–(100%)	1141, 909, 112, 1637, 1378
^{126}Sn	~1×10^{5} y	0+	Q_{β^-}378 *30*	β–(100%)	88, 64, 87, 23, 22
^{126}Sb	12.46 d *3*	(8)-	Q_{β^-}3673 *32*	β–(100%)	695, 666, 415, 721, 697
^{126}Sb(17.7) 19.15 m *8*		(5)+		β–(86% *4*), IT(14% *4*)	18
^{126}Sb(40.4)~11 s		(3)-		IT(100%)	23, 18
^{126}Te	18.95% *1*	0+	Δ –90070.3 *19*		
^{126}I	13.11 d *5*	2-	Q_{EC} 2155 *4*, Q_{β^-}1258 *5*	EC+β+(56.3% *20*), β–(43.7% *20*)	666, 754, 1420, 2045, 1379
^{126}Xe	0.09% *1*	0+	Δ –89173 *6*		
^{126}Cs	1.64 m *2*	1+	Q_{EC} 4824 *14*	EC+β+(100%)	389, 491, 925, 880, 434
^{126}Ba	100 m *2*	0+	Q_{EC} 1673 *18*	EC+β+(100%)	234, 258, 241, 682, 218
^{126}La	54 s *2*		Q_{EC} (7600 *300*)	EC+β+(100%)	625, 460, 340, 256
^{126}Ce	50 s *3*	0+	Q_{EC} (4400 *500*)	EC+β+(100%)	188, 120, 116, 82, 61
^{126}Pr	3.14 s *22*	(3,4,5)	Q_{EC} (10400 *600*)	EC+β+(100%), ECp	170, 350, 496, 985, 785
^{126}Nd			Q_{EC} (7200 *900*), Q_{α} (2300 *900*)		
^{127}Ag	109 ms *25*		Q_{β^-}(9700 *500*)	β–(100%)	
^{127}Cd	0.37 s *7*	(3/2+)	Q_{β^-}8468 *63*	β–(100%)	1235, 376, 524, 1067, 1202
^{127}In	1.09 s *1*	(9/2+)	Q_{β^-}6514 *31*	β–(100%), β–n(<0.03%)	1598, 646, 805, 1049, 956
^{127}In(462) 3.67 s *4*		(1/2-)		β–(100%), β–n(0.69% *4*)	252, 3074, 948, 833, 1085

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{127}Sn	2.10 h *4*	(11/2-)	Q_{β^-}3201 *24*	β–(100%)	1114, 1096, 823, 806, 860
^{127}Sn(4.7)	4.13 m *3*	(3/2+)		β–(100%)	491, 1348, 1564, 1585, 1096
^{127}Sb	3.85 d *5*	7/2+	Q_{β^-}1581 *5*	β–(100%)	686, 473, 784, 252, 604
^{127}Te	9.35 h *7*	3/2+	Q_{β^-}698 *4*	β–(100%)	418, 360, 203, 215, 58
^{127}Te(88.26)	109 d *2*	11/2-		IT(97.6% *2*), β–(2.4% *2*)	88
^{127}I	100%	5/2+	Δ –88987 *4*		
^{127}Xe	36.4 d *1*	1/2+	Q_{EC}662.4 *21*	EC(100%)	203, 172, 375, 145, 58
^{127}Xe(297.10)	69.2 s *9*	9/2-		IT(100%)	125, 172
^{127}Cs	6.25 h *10*	1/2+	Q_{EC}2085 *9*	EC+β+(100%)	412, 125, 462, 587, 287
^{127}Ba	12.7 m *4*	1/2+	Q_{EC}3450 *100*	EC+β+(100%)	181, 115, 66, 1201, 73
^{127}Ba(80.33)	1.9 s *2*	7/2-		IT(100%)	56, 24, 80
^{127}La	5.1 m *1*	(11/2-)	Q_{EC}(4690 *250*)	EC+β+(100%)	2272, 2058, 1881, 1801, 1668
^{127}La(14.8)	3.7 m *4*	(3/2+)		EC+β+(100%), IT	56, 25
^{127}Ce	31 s *2*	(5/2+)	Q_{EC}(6100 *400*)	EC+β+(100%)	253, 177, 115, 58, 456
^{127}Pr	4.2 s *3*	(11/2-)	Q_{EC}(7500 *500*)	EC+β+(100%)	126, 30, 243, 431, 160
^{127}Nd(x)1.8 s *4*			Q_{EC}(9000 *700*), Q_α(2200 *800*)	EC+β+(100%), ECp	
^{128}Cd	0.34 s *3*	0+	Q_{β^-}7100 *300*	β–(100%)	248, 857, 68, 925, 1172
^{128}In	0.84 s *6*	(3+)	Q_{β^-}8976 *40*	β–(100%), β–n(<0.04%)	1169, 3520, 4298, 935, 1090
^{128}In(340)	0.72 s *10*	(8-)		β–(100%), β–n(<0.04%)	832, 1169, 1867, 1974, 121
^{128}Sn	59.07 m *14*	0+	Q_{β^-}1274 *15*	β–(100%)	482, 75, 557, 681, 46
^{128}Sn(2091.50)	6.5 s *5*	(7-)		IT(100%)	832, 1169, 91
^{128}Sb	9.01 h *3*	8-	Q_{β^-}4384 *25*	β–(100%)	754, 743, 314, 527, 636
^{128}Sb(0+x)	10.4 m *2*	5+		β–(96.4% *10*), IT(3.6% *10*)	
^{128}Te	2.2×10^{24} y *3* 31.69% *1*	0+	Δ –88993.6 *18*	β–β–(100%)	
^{128}I	24.99 m *2*	1+	Q_{EC}1252 *4*, Q_{β^-}2119 *4*	β–(93.1% *8*), EC+β+(6.9% *8*)	743
^{128}Xe	1.91% *3*	0+	Δ –89860.8 *14*		
^{128}Cs	3.66 m *2*	1+	Q_{EC}3929 *5*	EC+β+(100%)	443, 527, 1140, 969, 613
^{128}Ba	2.43 d *5*	0+	Q_{EC}523 *12*	EC(100%)	273, 375, 230, 359, 215
^{128}La	5.0 m *3*	4-,5-	Q_{EC}6700 *400*	EC+β+(100%)	284, 479, 644, 601, 1053
^{128}Ce	6 s *2*	0+	Q_{EC}(3200 *500*)	EC+β+(100%)	
^{128}Pr	3.1 s *2*	4,5,6	Q_{EC}(9300 *500*)	EC+β+(100%), ECp	551, 873, 799, 592, 400
^{128}Nd	4 s *2*	0+	Q_{EC}(6100 *700*), Q_α(2100 *800*)	EC+β+(100%), ECp	
^{128}Pm			Q_{EC}(12000 *1100*), Q_α(2500 *1100*)		
^{129}Cd	0.27 s *4*	(3/2+)	Q_{β^-}(9900 *400*)	β–(100%)	281
^{129}In	0.61 s *1*	(9/2+)	Q_{β^-}7655 *32*	β–(100%), β–n(0.25% *5*)	2118, 1865, 769, 1008, 729
^{129}In(380)	1.23 s *3*	(1/2-)		β–(>99.7%), β–n(2.5% *5*), IT(<0.3%)	315, 1222, 907, 1289, 973
^{129}Sn	2.23 m *4*	(3/2+)	Q_{β^-}4000 *120*	β–(100%)	645, 914, 1252, 1197, 1117
^{129}Sn(35.2)	6.9 m *1*	(11/2-)		β–(100%), IT(~2×10^{-4}%)	1161, 1128, 761, 782, 307
^{129}Sb	4.40 h *1*	7/2+	Q_{β^-}2380 *21*	β–(100%)	813, 915, 545, 1030, 966
^{129}Sb(1851.05)	17.7 m *1*	(19/2-)		β–(85%), IT(15%)	1128, 723
^{129}Te	69.6 m *3*	3/2+	Q_{β^-}1498 *3*	β–(100%)	28, 460, 487, 278, 1084
^{129}Te(105.50)	33.6 d *1*	11/2-		IT(63% *17*), β–(37% *17*)	106
^{129}I	1.57×10^7 y *4*	7/2+	Q_{β^-}194 *3*	β–(100%)	40
^{129}Xe	26.4% *6*	1/2+	Δ –88697.4 *8*		
^{129}Xe(236.14)	8.88 d *2*	11/2-		IT(100%)	40, 197
^{129}Cs	32.06 h *6*	1/2+	Q_{EC}1196 *5*	EC+β+(100%)	372, 411, 549, 40, 318
^{129}Ba	2.23 h *11*	1/2+	Q_{EC}2432 *11*	EC+β+(100%)	214, 221, 129, 554, 1165
^{129}Ba(8.42)	2.16 h *2*	7/2+		EC+β+(<100%), IT	182, 1459, 202, 419.8, 419.8
^{129}La	11.6 m *2*	3/2+	Q_{EC}3720 *50*	EC+β+(100%)	279, 111, 457, 254, 449
^{129}La(172.1)	0.56 s *5*	11/2-		IT(100%)	68, 105
^{129}Ce	3.5 m *5*	5/2+	Q_{EC}(5050 *200*)	EC+β+(100%)	68
^{129}Pr	30 s *4*	(11/2-)	Q_{EC}(6300 *400*)	EC+β+(>0%)	1864, 1155, 1639, 961, 1301
^{129}Pr(0+x)				EC+β+(>0%)	
^{129}Nd	4.9 s *2*	(5/2+)	Q_{EC}(7800 *500*)	EC+β+(100%), ECp	
^{129}Pm			Q_{EC}(9200 *900*), Q_α(2500 *900*)		
^{130}Cd	0.20 s *4*	0+	Q_{β^-}(8500 *400*)	β–(100%), β–n(~4%)	
^{130}In	0.32 s *2*	1(-)	Q_{β^-}10249 *38*	β–(100%), β–n(0.90% *5*)	1905, 130, 1221, 774, 89
^{130}In(50)	0.55 s *1*	(10-)		β–(100%), β–n(<1.67%)	2259, 391, 97, 2321, 411
^{130}In(400)	0.55 s *1*	(5+)		β–(100%), β–n(<1.67%)	1221, 774, 89, 2377, 2028
^{130}Sn	3.72 m *4*	0+	Q_{β^-}2148 *15*	β–(100%)	193, 780, 70, 229, 743
^{130}Sn(1946.88)	1.7 m *1*	(7-)		β–(100%)	145, 899, 85, 311, 544
^{130}Sb	39.5 m *8*	(8-)	Q_{β^-}4959 *25*	β–(100%)	794, 839, 331, 182, 732
^{130}Sb(0+x)	6.3 m *2*	(5)+		β–(100%)	
^{130}Te	7.9×10^{20} y *10* 33.80% *1*	0+	Δ –87352.9 *19*	β–β–(100%)	
^{130}I	12.36 h *3*	5+	Q_{EC}420 *4*, Q_{β^-}2949 *3*	β–(100%)	536, 669, 739, 418, 1157
^{130}I (39.9525)	9.0 m *1*	2+		IT(84% *2*), β–(16% *2*)	40
^{130}Xe	4.1% *1*	0+	Δ –89881.8 *9*		

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{130}Cs	29.21 m *4*	1+	Q_{EC} 2979 *9*, Q_{β^-} 369 *11*	EC+β+(98.4%), β–(1.6%)	536, 586, 895, 1614, 1687
^{130}Cs(163.25)	3.46 m *6*	5-		IT(99.84% *2*), EC+β+(0.16% *2*)	536, 471, 207, 510, 586
^{130}Ba	0.106% *2*	0+	Δ –87271 *7*		
^{130}Ba(2475.12)	11 ms *2*	8-		IT(100%)	357, 545, 691, 882, 462
^{130}La	8.7 m *1*	3(+)	Q_{EC} (5600 *210*)	EC+β+(100%)	357, 551, 908, 545, 1004
^{130}Ce	25 m *2*	0+	Q_{EC} (2200 *600*)	EC+β+(100%)	131, 307, 220, 209, 181
^{130}Pr	40.0 s *4*		Q_{EC} (8100 *700*)	EC+β+(100%)	952, 499, 1405, 1282, 938
^{130}Nd	28 s *3*	0+	Q_{EC} (5000 *600*)	EC+β+(100%)	
^{130}Pm	2.2 s *5*		Q_{EC} (10900 *900*), Q_{α} (2400 *900*)	EC+β+(100%), ECp	
^{130}Sm		0+	Q_{EC} (7600 *1100*), Q_{α} (2800 *1100*)		
^{131}In	0.282 s *5*	(9/2+)	Q_{β^-} 9174 *22*	β–(100%), β–n(<2.2% *3*)	2434, 4487, 3990, 1655, 779
^{131}In(363)	0.35 s *5*	(1/2-)		β–(100%), β–n(<2.2% *3*), IT(<0.04%)	332, 1655
^{131}In(4270)	0.32 s *6*	(21/2+)		β–(100%), β–n(<2.2% *3*)	
^{131}Sn	56.0 s *5*	(3/2+)	Q_{β^-} 4632 *20*	β–(100%)	3268, 2471, 2039, 1787, 208
^{131}Sn(241.8)	58.4 s *5*	(11/2-)		β–(100%), IT(<0.009%)	367, 285, 63, 102, 185
^{131}Sb	23.03 m *4*	(7/2+)	Q_{β^-} 3190 *70*	β–(100%)	943, 933, 642, 1124, 658
^{131}Te	25.0 m *1*	3/2+	Q_{β^-} 2233.5 *23*	β–(100%)	150, 452, 1147, 493, 602
^{131}Te(182.250)	30 h *2*	11/2-		β–(77.8% *16*), IT(22.2% *16*)	182
^{131}I	8.02070 d *11*	7/2+	Q_{β^-} 970.8 *6*	β–(100%)	364, 637, 284, 80, 723
^{131}Xe	21.2% *4*	3/2+	Δ –88415.6 *10*		
^{131}Xe(163.931)	11.84 d *7*	11/2-		IT(100%)	164
^{131}Cs	9.689 d *16*	5/2+	Q_{EC} 352 *5*	EC(100%)	
^{131}Ba	11.50 d *6*	1/2+	Q_{EC} 1370 *7*	EC+β+(100%)	496, 124, 216, 373, 249
^{131}Ba(187.14)	14.6 m *2*	9/2-		IT(100%)	108, 79
^{131}La	59 m *2*	3/2+	Q_{EC} 2960 *100*	EC+β+(100%)	108, 418, 365, 285, 526
^{131}Ce	10.3 m *3*	(7/2+)	Q_{EC} 4000 *400*	EC+β+(100%)	169, 414, 119, 26, 395
^{131}Ce(0+x)	5.0 m *10*	(1/2+)		EC+β+(100%)	
^{131}Pr	1.53 m *5*	(3/2+)	Q_{EC} 5250 *150*	EC+β+(100%)	266, 73, 388, 324, 285
^{131}Pr(152.0)	5.7 s *2*	(11/2-)		IT(95%), EC+β+(5%)	138, 162
^{131}Nd	27 s *2*	(5/2)	Q_{EC} 6560 *150*	EC+β+(100%), ECp	668, 461, 174, 164, 88
^{131}Pm			Q_{EC} (8100 *800*), Q_{α} (2200 *700*)		
^{131}Sm	1.2 s *2*		Q_{EC} (9400 *1100*), Q_{α} (2600 *1100*)	EC+β+(100%), ECp	158
^{132}In	0.201 s *13*	(7-)	Q_{β^-} 14135 *60*	β–(100%), β–n(6.2% *11*)	374, 4041, 299, 2380, 479
^{132}Sn	39.7 s *5*	0+	Q_{β^-} 3103 *12*	β–(100%)	341, 86, 899, 247, 993
^{132}Sb	2.79 m *5*	(4+)	Q_{β^-} 5486 *20*	β–(100%)	974, 697, 990, 103, 817
^{132}Sb(0+x)	4.10 m *5*	(8-)		β–(100%)	
^{132}Te	3.204 d *13*	0+	Q_{β^-} 493 *4*	β–(100%)	228, 50, 116, 112
^{132}I	2.295 h *13*	4+	Q_{β^-} 3577 *11*	β–(100%)	668, 773, 955, 523, 630
^{132}I (120)	1.387 h *15*	(8-)		IT(86% *2*), β–(14% *2*)	98, 22
^{132}Xe	26.9% *5*	0+	Δ –89279.5 *11*		
^{132}Xe(2752.27)	8.39 ms *11*	(10+)		IT(100%)	773, 538, 668, 600, 174
^{132}Cs	6.479 d *7*	2+	Q_{EC} 2119 *3*, Q_{β^-} 1279.5 *22*	EC+β+(98.13% *9*), β–(1.87% *9*)	668, 630, 506, 1318, 1136
^{132}Ba	0.101% *2*	0+	Δ –88440 *3*		
^{132}La	4.8 h *2*	2-	Q_{EC} 4708 *45*	EC+β+(100%)	465, 567, 1910, 663, 1032
^{132}La(188.18)	24.3 m *5*	6-		IT(76%), EC+β+(24%)	465, 663, 286, 516, 899
^{132}Ce	3.51 h *11*	0+	Q_{EC} (1290 *200*)	EC+β+(100%)	182, 155, 217, 190, 330
^{132}Ce(2340.8)	13 ms *1*	(8-,9-)		IT(100%)	326, 533, 684, 798
^{132}Pr	1.6 m *3*		Q_{EC} (7100 *300*)	EC+β+(100%)	326, 497, 822, 533, 874
^{132}Nd	1.75 m *17*	0+	Q_{EC} (3700 *400*)	EC+β+(100%)	
^{132}Pm	6.3 s *7*	(3+)	Q_{EC} (9900 *600*), Q_{α} (2200 *600*)	EC+β+(100%), ECp(~5×10^{-5}%)	213, 397, 610, 824, 905
^{132}Sm	4.0 s *3*	0+	Q_{EC} (6600 *900*), Q_{α} (2600 *900*)	EC+β+(100%), ECp	
^{132}Eu			Q_{EC} (12400 *1100*), Q_{α} (3100 *1300*)		
^{133}In	180 ms *15*	(9/2+)	Q_{β^-}(13500 *400*)	β–(100%), β–n(85% *10*)	1561, 854, 2005
^{133}Sn	1.45 s *3*	(7/2-)	Q_{β^-} 7990 *25*	β–(100%), β–n(0.08%)	962, 5150, 5612, 4598, 2792
^{133}Sb	2.5 m *1*	(7/2+)	Q_{β^-} 4003 *13*	β–(100%)	1096, 818, 2755, 837, 1729
^{133}Te	12.5 m *3*	(3/2+)	Q_{β^-} 2918 *71*	β–(100%)	312, 408, 1333, 720, 787
^{133}Te(334.26)	55.4 m *4*	(11/2-)		IT(17.5% *30*), β–(82.5% *30*)	334
^{133}I	20.8 h *1*	7/2+	Q_{β^-} 1771 *26*	β–(100%)	530, 875, 1298, 511, 1236
^{133}I (1634.174)	9 s *2*	(19/2-)		IT(100%)	648, 913, 74
^{133}Xe	5.243 d *1*	3/2+	Q_{β^-} 427.4 *24*	β–(100%)	81, 80, 161, 303, 384
^{133}Xe(233.221)	2.19 d *1*	11/2-		IT(100%)	233
^{133}Cs	100%	7/2+	Δ –88076 *3*		
^{133}Ba	10.51 y *5*	1/2+	Q_{EC} 517.4 *10*	EC(100%)	356, 81, 303, 384, 276
^{133}Ba(288.247)	38.9 h *1*	11/2-		EC(0.0096% *11*), IT(99.9904% *11*)	633
^{133}La	3.912 h *8*	5/2+	Q_{EC} 2230 *200*	EC+β+(100%)	279, 302, 290, 633, 618
^{133}Ce	97 m *4*	1/2+	Q_{EC} (2900 *300*)	EC+β+(100%)	97, 77, 558, 377, 174
^{133}Ce(37.1)	4.9 h *4*	9/2-		EC+β+(100%)	477, 510, 58, 131, 785
^{133}Pr	6.5 m *3*	(3/2+)	Q_{EC} (4300 *300*)	EC+β+(100%)	134, 316, 465, 331, 242
^{133}Nd	70 s *10*	(7/2+)	Q_{EC} (5600 *400*)	EC+β+(100%)	164, 62, 367, 414, 105
^{133}Nd(127.97)~70 s		(1/2)+		EC+β+, IT	403, 488, 420, 744, 62

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{133}Pm	15 s *3*	(11/2-)	Q_{EC} (7000 *600*), Q_α (2100 *600*)	EC+β+(100%)	181, 291, 272, 345, 225
^{133}Sm(x+0)3.7 s *7*		(5/2+)	Q_{EC} (8400 *800*), Q_α (2700 *700*)	EC+β+(100%), ECp	
^{133}Eu			Q_{EC} (9500 *1100*), Q_α (2900 *1200*)		
^{134}In	138 ms *8*		Q_{β^-} (15100 *500*)	β–(100%), β–n(65%)	1561, 2005, 854, 802, 354
^{134}Sn	1.12 s *8*	0+	Q_{β^-} 7370 *90*	β–(100%), β–n(17% *13*)	872, 318, 554, 922, 1117
^{134}Sb(0+x)0.78 s *6*		(0-)	Q_{β^-} 8394 *42*	β–(100%)	
^{134}Sb(0+y) 10.23 s *8*		(7-)		β–(100%), β–n(0.091% *8*)	
^{134}Te	41.8 m *8*	0+	Q_{β^-} 1550 *30*	β–(100%)	767, 210, 278, 79, 435
^{134}I	52.5 m *2*	(4)+	Q_{β^-} 4175 *15*	β–(100%)	847, 884, 1073, 595, 622
^{134}I (316.49) 3.60 m *10*		(8)-		IT(97.7% *10*), β–(2.3% *10*)	272, 44, 316
^{134}Xe	10.4% *2*	0+	Δ –88124.4 *9*		
^{134}Xe(1965.5) 290 ms *17*		7-		IT(100%)	847, 884, 234
^{134}Cs	2.0648 y *10*	4+	Q_{EC} 1229 *3*, Q_{β^-} 2058.7 *4*	β–(99.9997% *1*), EC(0.0003% *1*)	847
^{134}Cs(138.7441) 2.903 h *8*		8-		IT(100%)	128, 11, 139
^{134}Ba	2.417% *27*	0+	Δ –88955 *3*		
^{134}Ba(2957.2) 2.63 μs *14*		(10+)		IT(100%)	
^{134}La	6.45 m *16*	1+	Q_{EC} 3713 *26*	EC+β+(100%)	605, 1555, 563, 1732, 1425
^{134}Ce	3.16 d *4*	0+	Q_{EC} 500 *200*	EC(100%)	162, 130, 301, 32, 294
^{134}Pr	17 m *2*	2-	Q_{EC} (6190 *220*)	EC+β+(100%)	409, 966, 556, 2136, 1904
^{134}Pr(0+y)~11 m		(5-)		EC+β+(100%)	
^{134}Nd	8.5 m *15*	0+	Q_{EC} 2770 *150*	EC+β+(100%)	163, 289, 217, 1000, 468
^{134}Nd(2293.1) 410 μs *30*		(8)-		IT(100%)	
^{134}Pm	~5 s	(2+)	Q_{EC} 9170 *200*, Q_α (2300 *500*)	EC+β+(100%)	294, 795, 754, 459, 335
^{134}Pm(0+z) 22 s *1*		(5+)		EC+β+(100%)	
^{134}Sm	10 s *1*	0+	Q_{EC} (5200 *600*), Q_α (2500 *700*)	EC+β+(100%)	119, 219, 380, 300, 161
^{134}Eu	0.5 s *2*		Q_{EC} (11500 *900*), Q_α (3040 *100*)	EC+β+(100%), ECp(>0%)	
^{135}Sn			Q_{β^-} (8900 *400*)		
^{135}Sb	1.71 s *2*	(7/2+)	Q_{β^-} 8120 *50*	β–(100%), β–n(16.4% *18*)	1279, 297, 115
^{135}Te	19.0 s *2*	(7/2-)	Q_{β^-} 5962 *89*	β–(100%)	604, 267, 870, 1133, 1184
^{135}I	6.57 h *2*	7/2+	Q_{β^-} 2648 *24*	β–(100%)	1260, 1132, 1678, 1458, 1039
^{135}Xe	9.14 h *2*	3/2+	Q_{β^-} 1151 *10*	β–(100%)	250, 608, 408, 158, 358
^{135}Xe(526.551) 15.29 m *5*		11/2-		IT(99.996%), β–(0.004%)	527
^{135}Cs	2.3×10^6 y *3*	7/2+	Q_{β^-} 269.3 *12*	β–(100%)	
^{135}Cs(1632.9) 53 m *2*		19/2-		IT(100%)	787, 846
^{135}Ba	6.592% *18*	3/2+	Δ –87856 *3*		
^{135}Ba(268.219) 28.7 h *2*		11/2-		IT(100%)	268
^{135}La	19.5 h *2*	5/2+	Q_{EC} 1200 *10*	EC+β+(100%)	481, 875, 588, 221, 367
^{135}Ce	17.7 h *2*	1/2(+)	Q_{EC} 2026 *5*	EC+β+(100%)	266, 300, 607, 518, 784
^{135}Ce(445.8) 20 s *1*		11/2(-)		IT(100%)	213, 150, 83, 296
^{135}Pr	24 m *2*	3/2(+)	Q_{EC} 3720 *150*	EC+β+(100%)	296.1, 83, 213, 538, 296.1
^{135}Nd	12.4 m *6*	9/2(-)	Q_{EC} (4750 *250*)	EC+β+(100%)	204, 41, 441, 502, 476
^{135}Nd(65.0) 5.5 m *5*		(1/2+)		EC+β+(100%)	
^{135}Pm(0+x)45 s *4*		(11/2-)	Q_{EC} (5940 *250*)	EC+β+(100%)	
^{135}Pm(0+y) 49 s *3*		(3/2+,5/2+)		EC+β+(100%)	
^{135}Sm	10.3 s *5*	(7/2+)	Q_{EC} (7200 *600*), Q_α (2500 *700*)	EC+β+(100%), ECp(0.02% *1*)	495, 294
^{135}Eu	1.5 s *2*		Q_{EC} (8700 *800*), Q_α (3100 *800*)	EC+β+(100%), ECp	121
^{136}Sn		0+	Q_{β^-} (8100 *600*)		
^{136}Sb	0.82 s *2*		Q_{β^-} (9800 *300*)	β–(100%), β–n(24.0%), β–2n	
^{136}Te	17.5 s *2*	0+	Q_{β^-} 5075 *58*	β–(100%), β–n(1.1% *6*)	2078, 334, 579, 2569, 3235
^{136}I	83.4 s *10*	(1-)	Q_{β^-} 6926 *50*	β–(100%)	1313, 1321, 2290, 2415, 2634
^{136}I (640) 46.9 s *10*		(6-)		β–(100%)	
^{136}Xe	$>2.36\times10^{21}$ y 8.9% *1*	0+	Δ –86424 *7*		
^{136}Cs	13.16 d *3*	5+	Q_{EC} 80 *8*, Q_{β^-} 2548.2 *19*	β–(100%)	819, 1048, 341, 1235, 274
^{136}Cs(0+x) 19 s *2*		8-		IT, β–	
^{136}Ba	7.854% *36*	0+	Δ –88892 *3*		
^{136}Ba(2030.52) 0.3084 s *19*		7-		IT(100%)	1048, 819, 164, 316, 732
^{136}La	9.87 m *3*	1+	Q_{EC} 2870 *70*, Q_{β^-} 473 *85*	EC+β+(100%)	819, 761, 1323, 1310, 2129
^{136}La(230+x) 114 ms *3*				IT(100%)	
^{136}Ce	0.19% *1*	0+	Δ –86495 *48*		
^{136}Pr	13.1 m *1*	2+	Q_{EC} 5126 *18*	EC+β+(100%)	552, 540, 1092, 461, 1001
^{136}Nd	50.65 m *33*	0+	Q_{EC} 2211 *25*	EC+β+(100%)	109, 40, 575, 149, 101
^{136}Pm(0+x)47 s *2*		(2+)	Q_{EC} 7850 *200*	EC+β+(100%)	
^{136}Pm(0+y) 107 s *6*		5(+),6-		EC+β+(100%)	
^{136}Sm	47 s *2*	0+	Q_{EC} (4500 *500*), Q_α (2400 *500*)	EC+β+(100%)	114, 748, 485, 314, 287
^{136}Eu(0+x)3.3 s *3*		(7+)	Q_{EC} (10400 *600*), Q_α (2900 *700*)	EC+β+(100%), ECp(0.09%)	
^{136}Eu(0+y) 3.7 s *3*		(3+)		EC+β+(100%), ECp(0.09%)	
^{136}Gd			Q_{EC} (7100 *900*), Q_α (3400 *100*)		
^{137}Sn			Q_{β^-} (9800 *700*)		

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{137}Sb			Q_{β^-}(9300 *400*)		
^{137}Te	2.49 s *5*	(7/2-)	Q_{β^-}6940 *120*	β–(100%), β–n(2.69% *63*)	738, 631, 579, 334, 135
^{137}I	24.5 s *2*	(7/2+)	Q_{β^-}5877 *27*	β–(100%), β–n(6.97% *42*)	1218, 601, 1303, 1220, 1534
^{137}Xe	3.818 m *13*	7/2-	Q_{β^-}4173 *7*	β–(100%)	455, 849, 1783, 1273, 982
^{137}Cs	30.07 y *3*	7/2+	Q_{β^-}1175.63 *17*	β–(100%)	662
^{137}Ba	11.23% *4*	3/2+	Δ–87727 *3*		
^{137}Ba(661.660)	2.552 m *1*	11/2-		IT(100%)	662
^{137}La	6×10^4 y *2*	7/2+	Q_{EC} 600 *48*	EC(100%)	
^{137}Ce	9.0 h *3*	3/2+	Q_{EC} 1222.1 *16*	EC+β+(100%)	447, 11, 437, 433, 916
^{137}Ce(254.29)	34.4 h *3*	11/2-		IT(99.22% *3*), EC+β+(0.78% *3*)	825, 169, 762, 835, 1004
^{137}Pr	1.28 h *3*	5/2+	Q_{EC} 2702 *10*	EC+β+(100%)	837, 434, 514, 160, 354
^{137}Nd	38.5 m *15*	1/2+	Q_{EC} 3690 *54*	EC+β+(100%)	76, 581, 307, 782, 762
^{137}Nd(519.6)	1.60 s *15*	11/2-		IT(100%)	234, 178, 109, 286
^{137}Pm	2.4 m *1*	11/2-	Q_{EC} (5660 *110*)	EC+β+(100%)	178, 109, 234, 286, 581
^{137}Sm	45 s *1*	(9/2-)	Q_{EC} (5900 *120*), Q_α (2100 *300*)	EC+β+(100%)	381, 164, 408, 531, 217
^{137}Eu	11 s *2*	(11/2-)	Q_{EC} (7600 *500*), Q_α (2700 *700*)	EC+β+(100%)	
^{137}Gd	7 s *3*		Q_{EC} (8800 *800*), Q_α (3100 *800*)	EC+β+(100%)	
^{138}Sb			Q_{β^-}(10900 *500*)		
^{138}Te	1.4 s *4*	0+	Q_{β^-}(6370 *220*)	β–(100%), β–n(6.3% *21*)	
^{138}I	6.49 s *7*	(2-)	Q_{β^-}7820 *70*	β–(100%), β–n(5.5% *4*)	601, 385
^{138}Xe	14.08 m *8*	0+	Q_{β^-}2774 *36*	β–(100%)	258, 435, 1768, 2016, 397
^{138}Cs	33.41 m *18*	3-	Q_{β^-}5374 *9*	β–(100%)	1436, 463, 1010, 2218, 547
^{138}Cs(79.9)	2.91 m *8*	6-		β–(19% *2*), IT(81% *2*)	80
^{138}Ba	71.70% *7*	0+	Δ–88267 *3*		
^{138}La	1.05×10^{11} y *2*	5+	Δ–86529 *4*, Q_{EC} 1738 *4*	β–(33.6% *5*), EC+β+(66.4% *5*)	1436
	0.0902% *2*		Q_{β^-}1044 *11*		
^{138}Ce	0.25% *1*	0+	Δ–87574 *11*		
^{138}Ce(2129.17)	8.65 ms *20*	7-		IT(100%)	1038, 789, 303
^{138}Pr	1.45 m *5*	1+	Q_{EC} 4437 *10*	EC+β+(100%)	789, 688, 1551, 1448, 1510
^{138}Pr(364)	2.12 h *4*	7-		EC+β+(100%)	1038, 789, 303, 391, 548
^{138}Nd	5.04 h *9*	0+	Q_{EC} (1100 *200*)	EC(100%)	326, 200, 342, 215, 194
^{138}Pm	10 s *2*	1+	Q_{EC} 7000 *250*	EC+β+(100%)	
^{138}Pm(0+x)	3.24 m *5*	(5-)		EC+β+, IT	
^{138}Sm	3.1 m *2*	0+	Q_{EC} (3800 *400*), Q_α (2100 *400*)	EC+β+(100%)	75, 54
^{138}Eu	12.1 s *6*	(6-)	Q_{EC} (9200 *500*), Q_α (2200 *600*)	EC+β+(100%)	347, 545, 686, 399, 649
^{138}Gd		0+	Q_{EC} (6100 *600*), Q_α (3100 *700*)		
^{138}Tb			Q_{EC} (12000 *900*), Q_α (3700 *1100*)		
^{139}Sb			Q_{β^-}(10200 *700*)		
^{139}Te			Q_{β^-}(8000 *400*)		
^{139}I	2.29 s *2*	(7/2+)	Q_{β^-}6806 *23*	β–(100%), β–n(9.9% *8*)	589, 484, 875, 1464
^{139}Xe	39.68 s *14*	3/2-	Q_{β^-}5057 *21*	β–(100%)	219, 297, 175.0, 290, 175.0
^{139}Cs	9.27 m *5*	7/2+	Q_{β^-}4213 *3*	β–(100%)	1283, 627, 1421, 2111, 1681
^{139}Ba	83.06 m *28*	7/2-	Q_{β^-}2317 *3*	β–(100%)	166, 1421, 1255, 1311, 1091
^{139}La	99.9098% *2*	7/2+	Δ–87236 *3*		
^{139}Ce	137.640 d *23*	3/2+	Q_{EC} 278 *7*	EC(100%)	166
^{139}Ce(754.24)	54.8 s *10*	11/2-		IT(100%)	754
^{139}Pr	4.41 h *4*	5/2+	Q_{EC} 2129 *3*	EC+β+(100%)	1347, 1631, 255, 1376, 1320
^{139}Nd	29.7 m *5*	3/2+	Q_{EC} 2787 *50*	EC+β+(100%)	405, 1074, 669, 917, 923
^{139}Nd(231.15)	5.50 h *20*	11/2-		EC+β+(88.2% *4*), IT(11.8% *4*)	114, 738, 982, 708, 828
^{139}Pm	4.15 m *5*	(5/2)+	Q_{EC} 4504 *29*	EC+β+(100%)	403, 463, 368, 757, 95
^{139}Pm(188.7)	180 ms *20*	(11/2)-		IT(99.94%$^{+5}_{-20}$), EC+β+(0.06%$^{+29}_{-5}$)	189
^{139}Sm	2.57 m *10*	(1/2)+	Q_{EC} 5163 *60*	EC+β+(100%)	274, 307, 596, 782, 509
^{139}Sm(457.8)	10.7 s *6*	(11/2)-		IT(93.7% *5*), EC+β+(6.3% *5*)	189
^{139}Eu	17.9 s *6*	(11/2)-	Q_{EC} (7020 *150*), Q_α (2400 *400*)	EC+β+(100%)	267, 155, 190, 112, 719
^{139}Gd	4.9 s *10*	9/2-	Q_{EC} (7700 *500*), Q_α (2900 *700*)	EC+β+, ECp	
^{139}Tb			Q_{EC} (9300 *900*), Q_α (3500 *900*)		
^{140}Te		0+	Q_{β^-}(7000 *500*)		
^{140}I	0.86 s *4*	(4)	Q_{β^-}(8920 *220*)	β–(100%), β–n(9.3% *10*)	377, 458, 937, 564, 739
^{140}Xe	13.60 s *10*	0+	Q_{β^-}4060 *60*	β–(100%)	806, 1414, 1315, 622, 1309
^{140}Cs	63.7 s *3*	1-	Q_{β^-}6220 *10*	β–(100%)	602, 908, 1200, 2331, 1853
^{140}Ba	12.752 d *3*	0+	Q_{β^-}1050 *8*	β–(100%)	537, 30, 163, 305, 424
^{140}La	1.6781 d *3*	3-	Q_{β^-}3761.9 *19*	β–(100%)	1596, 487, 816, 329, 925
^{140}Ce	88.48% *10*	0+	Δ–88088 *3*		
^{140}Pr	3.39 m *1*	1+	Q_{EC} 3388 *6*	EC(100%)	1596, 307, 752, 925, 2521
^{140}Nd	3.37 d *2*	0+	Q_{EC} 222 *20*	EC(100%)	
^{140}Pm	9.2 s *2*	1+	Q_{EC} 6047 *23*	EC+β+(100%)	774, 477, 1205, 1139, 160
^{140}Pm(400)	5.95 m *5*	7-		EC+β+(100%)	
^{140}Pm(0+x)	5.95 m *5*	8-		EC+β+(100%)	
^{140}Sm	14.82 m *12*	0+	Q_{EC} 2971 *34*	EC+β+(100%)	225, 140, 341, 1138, 340
^{140}Eu	1.51 s *2*	1+	Q_{EC} 8470 *50*	EC+β+(100%)	531, 1068, 460, 2065, 1491
^{140}Eu(185.3+x)	125 ms *2*	(5-)		IT(100%), EC+β+(<1%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{140}Gd	15.8 s *4*	0+	Q_{EC} (5500 *400*), Q_{α} (2800 *600*)	EC+β+(100%)	175, 750, 379, 191, 575
^{140}Tb	2.4 s *2*	5	Q_{EC} (10800 *800*), Q_{α} (3200 *1000*)	EC+β+(100%), p(0.26% *13*)	329, 628, 508
^{140}Dy		0+	Q_{EC} (7700 *1300*), Q_{α} (3800 *1100*)		
^{141}Te			Q_{β^-} (8900 *600*)		
^{141}I	0.43 s *2*		Q_{β^-} (7600 *300*)	β–(100%), β–n(21.2% *30*)	
^{141}Xe	1.73 s *1*	5/2(-)	Q_{β^-} 6150 *90*	β–(100%), β–n(0.044% *5*)	909, 119, 106, 459, 540
^{141}Cs	24.94 s *6*	7/2+	Q_{β^-} 5251 *11*	β–(100%), β–n(0.029% *2*)	49, 562, 1194, 589, 555
^{141}Ba	18.27 m *7*	3/2-	Q_{β^-} 3213 *9*	β–(100%)	190, 304, 277, 344, 648
^{141}La	3.92 h *3*	(7/2+)	Q_{β^-} 2502 *4*	β–(100%)	1355, 1693, 2267, 662, 2171
^{141}Ce	32.501 d *5*	7/2-	Q_{β^-} 580.7 *11*	β–(100%)	145
^{141}Pr	100%	5/2+	Δ –86026 *3*		
^{141}Nd	2.49 h *3*	3/2+	Q_{EC} 1823 *3*	EC+β+(100%)	1127, 1293, 1147, 145, 1299
^{141}Nd(756.7)	62.0 s *8*	11/2-		IT(>99.95%), EC+β+(<0.05%)	972, 145
^{141}Pm	20.90 m *5*	5/2+	Q_{EC} 3728 *27*	EC+β+(100%)	1223, 886, 194, 1346, 622
^{141}Sm	10.2 m *2*	1/2+	Q_{EC} 4529 *27*	EC+β+(100%)	404, 439, 1293, 1601, 1057
^{141}Sm(175.8)	22.6 m *2*	11/2-		EC+β+(99.69% *3*), IT(0.31% *3*)	197, 432, 778, 1786, 1490
^{141}Eu	40.0 s *7*	5/2+	Q_{EC} 5978 *26*	EC+β+(100%)	394, 385, 383, 593, 396
^{141}Eu(96.4)	2.7 s *3*	11/2-		IT(87%$^{+2}_{-1}$), EC+β+(13%$^{+4}_{-2}$)	394, 883, 519, 804, 434
^{141}Gd	14 s *4*	(1/2+)	Q_{EC} (6800 *300*), Q_{α} (2400 *300*)	EC+β+(100%), ECp(0.03% *1*)	216, 526, 336, 121, 1193
^{141}Gd(377.8)	24.5 s *5*	(11/2-)		EC+β+(89% *2*), IT(11% *2*)	351, 224, 575, 361, 561
^{141}Tb	3.5 s *2*	(5/2-)	Q_{EC} (8300 *700*), Q_{α} (3100 *800*)	EC+β+(100%)	293, 344, 198, 137, 258
^{141}Dy	0.9 s *2*	(9/2-)	Q_{EC} (9300 *900*), Q_{α} (3700 *900*)	EC+β+(100%), ECp	
^{142}Te		0+	Q_{β^-} (7800 *700*)		
^{142}I			Q_{β^-} (9800 *400*)		
^{142}Xe	1.22 s *2*	0+	Q_{β^-} 5040 *100*	β–(100%), β–n(0.406% *34*)	572, 657, 538, 618, 204
^{142}Cs	1.70 s *2*	0-	Q_{β^-} 7307 *10*	β–(100%), β–n(0.091% *3*)	360, 1326, 967, 1176, 511
^{142}Ba	10.6 m *2*	0+	Q_{β^-} 2211 *5*	β–(100%)	255, 1204, 895, 232, 1079
^{142}La	91.1 m *5*	2-	Q_{β^-} 4504 *5*	β–(100%)	641, 2398, 2543, 895, 1901
^{142}Ce	>5×10^{16} y 11.08% *10*	0+	Δ –84543 *3*		
^{142}Pr	19.12 h *4*	2-	Q_{EC} 745.3 *24*, Q_{β^-} 2162.2 *15*	β–(99.9836% *8*), EC(0.0164% *8*)	641
^{142}Pr(3.6815)	14.6 m *5*	5-		IT(100%)	4
^{142}Nd	27.13% *12*	0+	Δ –85960 *3*		
^{142}Pm	40.5 s *5*	1+	Q_{EC} 4874 *42*	EC+β+(100%)	1576, 641, 2384, 2846, 2583
^{142}Pm(883.17)	2.0 ms *2*	(8)-		IT(100%)	434, 204, 209, 32, 171
^{142}Sm	72.49 m *5*	0+	Q_{EC} 2089 *44*	EC+β+(100%)	
^{142}Eu	2.34 s *12*	1+	Q_{EC} 7645 *29*	EC+β+(100%)	768, 1658, 1754.1, 1754.1, 1671
^{142}Eu(0+x)	1.22 m *2*	8-		EC+β+(100%)	
^{142}Gd	70.2 s *6*	0+	Q_{EC} (4500 *300*)	EC+β+(100%)	750, 179, 284, 526, 1260
^{142}Tb	597 ms *17*	1+	Q_{EC} (9900 *700*), Q_{α} (2600 *900*)	EC+β+(100%), ECp(0.0022% *11*)	515, 465, 853, 1399, 694
^{142}Tb(280.2)	303 ms *17*	(5-)		IT(100%), EC+β+(<0.5%)	212, 182, 69, 30, 98
^{142}Dy	2.3 s *3*	0+	Q_{EC} (6900 *200*), Q_{α} (3400 *900*)	EC+β+(100%), ECp(0.06% *3*)	182
^{142}Ho			Q_{EC} (12700 *1300*), Q_{α} (4100 *1300*)		
^{143}I			Q_{β^-} (8600 *500*)		
^{143}Xe	0.30 s *3*	5/2-	Q_{β^-} (7040 *230*)	β–(100%)	90
^{143}Cs	1.78 s *1*	3/2+	Q_{β^-} 6253 *20*	β–(100%), β–n(1.62% *10*)	196, 232, 306, 660, 273
^{143}Ba	14.33 s *8*	5/2-	Q_{β^-} 4246 *18*	β–(100%)	211, 799, 980, 1010, 291
^{143}La	14.2 m *1*	(7/2)+	Q_{β^-} 3426 *15*	β–(100%)	620, 644, 621, 798, 1149
^{143}Ce	33.039 h *6*	3/2-	Q_{β^-} 1461.4 *18*	β–(100%)	293, 57, 665, 722, 351
^{143}Pr	13.57 d *2*	7/2+	Q_{β^-} 933.9 *14*	β–(100%)	742
^{143}Nd	12.18% *6*	7/2-	Δ –84012 *3*		
^{143}Pm	265 d *7*	5/2+	Q_{EC} 1041.4 *24*	EC+β+(100%)	742
^{143}Sm	8.83 m *1*	3/2+	Q_{EC} 3443 *4*	EC+β+(100%)	1057, 1515, 1173, 1403, 272
^{143}Sm(754.0)	66 s *2*	11/2-		IT(99.76% *6*), EC+β+(0.24% *6*)	688, 960
^{143}Sm(2794.7)	30 ms *3*	23/2(-)		IT(100%)	1573, 208, 77, 1706, 1832
^{143}Eu	2.63 m *5*	5/2+	Q_{EC} 5275 *14*	EC+β+(100%)	1107, 1537, 1913, 108, 1805
^{143}Gd	39 s *2*	(1/2)+	Q_{EC} 6010 *200*	EC+β+(100%), ECp(<0.001%)	259, 205, 464, 813, 1284
^{143}Gd(152.6)	112 s *2*	(11/2-)		EC+β+(100%)	272, 588, 799, 668, 1807
^{143}Tb	12 s *1*	(11/2-)	Q_{EC} (7500 *400*), Q_{α} (2200 *400*)	EC+β+(100%)	45, 686, 463, 380, 434
^{143}Tb(0+x)	<21 s	(5/2+)			
^{143}Dy	4.1 s *3*		Q_{EC} (8500 *600*), Q_{α} (2900 *700*)	EC+β+(100%), ECp	
^{143}Ho			Q_{EC} (10100 *900*), Q_{α} (3780 *100*)		
^{144}I			Q_{β^-} (10600 *600*)		
^{144}Xe	1.15 s *20*	0+	Q_{β^-} (5800 *300*)	β–(100%)	
^{144}Cs	1.01 s *1*	1	Q_{β^-} 8464 *27*	β–(100%), β–n(3.17% *19*)	199, 639, 759, 560, 331
^{144}Cs(0+x)	<1 s	(GE 4)		β–	
^{144}Ba	11.5 s *2*	0+	Q_{β^-} 3119 *56*	β–(100%), β–n(3.6% *7*)	104, 430, 173, 157, 388
^{144}La	40.8 s *4*	(3-)	Q_{β^-} 5541 *56*	β–(100%)	397, 541, 845, 585, 735
^{144}Ce	284.893 d *8*	0+	Q_{β^-} 318.7 *8*	β–(100%)	134, 80, 41, 34, 53
^{144}Pr	17.28 m *5*	0-	Q_{β^-} 2997.5 *24*	β–(100%)	697, 2186, 1489, 1388, 814
^{144}Pr(59.03)	7.2 m *3*	3-		IT(99.93%), β–(0.07%)	59

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{144}Nd	2.29×10^{15} y *16* 23.80% *12*	0+	Δ −83757 *3*	α(100%)	
^{144}Pm	363 d *14*	5-	Q_{EC} 2331.7 *22*, Q_{β^-} 550.5 *25*	EC+β+(100%)	697, 618, 477, 779, 694
^{144}Sm	3.1% *1*	0+	Δ −81976 *3*		
^{144}Eu	10.2 s *1*	1+	Q_{EC} 6315 *17*	EC+β+(100%)	1660, 818, 2423, 763, 1001
^{144}Gd	4.5 m *1*	0+	Q_{EC} (3740 *200*)	EC+β+(100%)	333, 2433, 630, 347, 2471
^{144}Tb	~1 s	(1+)	Q_{EC} (9100 *400*)	EC+β+(100%)	743, 1144, 1719, 1484, 2227
^{144}Tb(396.9) 4.25 s *15*		(6-)		IT(66%), EC+β+(34%)	743, 1002, 959, 558, 600
^{144}Dy	9.1 s *4*	0+	Q_{EC} (6100 *500*), Q_α (2300 *600*)	EC+β+(100%), ECp	197, 299, 476, 322
^{144}Ho	0.7 s *1*		Q_{EC} (11700 *700*), Q_α (3300 *1100*)	EC+β+(100%), ECp	
^{144}Er		0+	Q_{EC} (8340 *100*), Q_α (3900 *1200*)		
^{145}Xe	0.9 s *3*		Q_{β^-} (7700 *400*)	β−(100%), β−n	
^{145}Cs	0.594 s *13*	3/2+	Q_{β^-} 7885 *40*	β−(100%), β−n(13.8% *8*)	175, 199, 112, 436, 241
^{145}Ba	4.31 s *16*	5/2-	Q_{β^-} 4923 *65*	β−(100%)	97, 92, 66, 544.2, 544.2
^{145}La	24.8 s *20*	(5/2+)	Q_{β^-} 4108 *65*	β−(100%)	70, 356, 118, 447, 170
^{145}Ce	3.01 m *6*	(3/2)-	Q_{β^-} 2535 *39*	β−(100%)	724, 63, 1148, 285, 440
^{145}Pr	5.984 h *10*	7/2+	Q_{β^-} 1805 *7*	β−(100%)	748, 676, 73, 979, 1150
^{145}Nd	8.30% *6*	7/2-	Δ −81442 *3*		
^{145}Pm	17.7 y *4*	5/2+	Q_{EC} 163.0 *22*, Q_α 2322 *3*	EC(100%), α(2.8×10^{-7}%)	73, 67
^{145}Sm	340 d *3*	7/2-	Q_{EC} 616.4 *24*	EC(100%)	61, 492, 431
^{145}Eu	5.93 d *4*	5/2+	Q_{EC} 2660 *3*	EC+β+(100%)	894, 654, 1659, 1997, 543
^{145}Gd	23.0 m *4*	1/2+	Q_{EC} 5054 *36*	EC+β+(100%)	1758, 1881, 1042, 808, 1072
^{145}Gd(748.7) 85 s *3*		11/2-		IT(94.3% *5*), EC+β+(5.7% *5*)	330, 387, 716
^{145}Tb(0+x)		(1/2+)	Q_{EC} (6700 *220*)		
^{145}Tb(0+y) 29.5 s *10*		(11/2-)		EC+β+(100%)	
^{145}Dy	10 s *1*	(1/2+)	Q_{EC} (7520 *200*)	EC+β+(100%)	
^{145}Dy(118.2) 13.6 s *10*		(11/2-)		EC+β+(100%)	578, 640, 804, 40
^{145}Ho	2.4 s *1*	(11/2-)	Q_{EC} (9200 *700*), Q_α (2900 *800*)	EC+β+(100%)	340, 313, 334, 402, 309
^{145}Er	0.9 s *3*	(11/2-)	Q_{EC} (9900 *900*), Q_α (3420 *100*)	EC+β+(100%), ECp	
^{146}Xe		0+	Q_{β^-} (6600 *400*)	β−(100%)	
^{146}Cs	0.343 s *7*	1-	Q_{β^-} 9367 *37*	β−(100%), β−n(13.2% *6*)	181, 558, 332, 739, 640
^{146}Ba	2.22 s *7*	0+	Q_{β^-} 4105 *43*	β−(100%)	141, 251, 121, 197, 232
^{146}La	6.27 s *10*	2-	Q_{β^-} 6530 *47*	β−(100%)	258, 925, 702, 666, 410
^{146}La(0+x) 10.0 s *1*		(6-)		β−(100%)	
^{146}Ce	13.52 m *13*	0+	Q_{β^-} 1026 *35*	β−(100%)	317, 218, 265, 134, 210
^{146}Pr	24.15 m *18*	(2)-	Q_{β^-} 4169 *58*	β−(100%)	454, 1524, 736, 789, 1377
^{146}Nd	17.19% *9*	0+	Δ −80936 *3*		
^{146}Pm	5.53 y *5*	3-	Q_{EC} 1472 *4*, Q_{β^-} 1542 *3*	EC+β+(66.0% *13*), β−(34.0% *13*)	454, 736, 589, 146
^{146}Sm	1.03×10^8 y *5*	0+	Q_α 2529 *3*	α(100%)	
^{146}Eu	4.59 d *3*	4-	Q_{EC} 3878 *6*	EC+β+(100%)	747, 633, 634, 1534, 1297
^{146}Gd	48.27 d *10*	0+	Q_{EC} 1030 *8*	EC(100%)	155, 116, 115, 576, 422
^{146}Tb	8 s *4*	1+	Q_{EC} 8267 *45*	EC+β+(100%)	1972, 1059
^{146}Tb(0+x) 23 s *2*		5-		EC+β+(100%)	
^{146}Tb(779.6+x) 1.18 ms *2*		(10+)		IT(100%)	
^{146}Dy	29 s *3*	0+	Q_{EC} 5160 *100*	EC+β+(100%)	2157, 1916, 1877, 1802, 1772
^{146}Dy(2935.6) 150 ms *20*		(10+)		IT(100%)	925, 237, 683, 674, 417
^{146}Ho	3.6 s *3*	(10+)	Q_{EC} (10600 *500*), Q_α (2500 *900*)	EC+β+(100%), ECp	683, 925, 674, 237, 290
^{146}Er	1.7 s *6*	0+	Q_{EC} (7500 *800*), Q_α (3030 *100*)	EC+β+(100%), ECp	
^{146}Tm	235 ms *27*	(10+)	Q_{EC} (13400 *900*), Q_α (3800 *1200*)	EC+β+(~55%), p(~45%)	
^{146}Tm(70) 72 ms *23*		(5-,6+)		p(100%), EC+β+	
^{147}Xe			Q_{β^-} (8500 *500*)		
^{147}Cs	0.225 s *5*	(3/2+)	Q_{β^-} 9200 *180*	β−(100%), β−n(43% *5*)	85, 246, 110, 596, 328
^{147}Ba	0.893 s *1*	(3/2+)	Q_{β^-} 5750 *50*	β−(100%), β−n(0.06% *3*)	167, 105, 196, 249, 1517
^{147}La	4.015 s *8*	(5/2+)	Q_{β^-} 4945 *55*	β−(100%), β−n(0.035% *6*)	118, 186, 438, 216, 283
^{147}Ce	56.4 s *10*	(5/2-)	Q_{β^-} 3290 *40*	β−(100%)	269, 93, 374, 452, 466
^{147}Pr	13.4 m *4*	(3/2+)	Q_{β^-} 2686 *37*	β−(100%)	78, 315, 641, 578, 128
^{147}Nd	10.98 d *1*	5/2-	Q_{β^-} 896.0 *9*	β−(100%)	91, 531, 319, 440, 398
^{147}Pm	2.6234 y *2*	7/2+	Q_{β^-} 224.1 *3*	β−(100%)	121, 197, 76
^{147}Sm	1.06×10^{11} y *2* 15.0% *2*	7/2-	Δ −79276 *3*, Q_α 2310.5 *11*	α(100%)	
^{147}Eu	24.1 d *6*	5/2+	Q_{EC} 1721.3 *23*, Q_α 2990 *3*	EC(100%), α(0.0022% *6*)	197, 121, 678, 1077, 601
^{147}Gd	38.06 h *12*	7/2-	Q_{EC} 2187 *3*	EC+β+(100%)	229, 396, 929, 370, 766
^{147}Tb	1.7 h *1*	(1/2+)	Q_{EC} 4609 *12*	EC+β+(100%)	1152, 694, 140, 120, 555
^{147}Tb(50.6) 1.83 m *6*		(11/2)-		EC+β+(100%)	1397, 1797, 1643, 997, 2972
^{147}Dy	40 s *10*	1/2+	Q_{EC} 6373 *51*	EC+β+(100%), ECp	365, 253, 1388, 101, 1725
^{147}Dy(750.5) 55 s *1*		11/2-		EC+β+(65% *4*), IT(35% *4*)	678, 72
^{147}Ho	5.8 s *4*	(11/2-)	Q_{EC} (8300 *400*), Q_α (2300 *600*)	EC+β+(100%), ECp	189, 884, 487, 1264, 956
^{147}Er	2.5 s *2*	(11/2-)	Q_{EC} (8800 *600*), Q_α (2700 *700*)	EC+β+(100%), ECp	
^{147}Er(0+x)~2.5 s		(1/2+)		EC+β+(100%), ECp	
^{147}Tm	0.56 s *4*	(11/2-)	Q_{EC} (11000 *800*), Q_α (3500 *900*)	EC+β+(~90%), p(~10%)	
^{147}Tm(67) 360 μs *80*		(1/2+,3/2+)		p(100%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{148}Cs	158 ms *7*		Q_{β^-}10400 *600*	β–(100%), β–n(25% *3*)	142, 687, 546, 633, 281
^{148}Ba	0.607 s *25*	0+	Q_{β^-}5115 *60*	β–(100%), β–n(0.4% *3*)	56, 134, 416, 99, 54
^{148}La	1.05 s *1*	(2-)	Q_{β^-}7262 *51*	β–(100%), β–n(0.11% *1*)	158, 990, 760, 602, 777
^{148}Ce	56 s *1*	0+	Q_{β^-}2060 *75*	β–(100%)	270, 292, 121, 99, 325
^{148}Pr	2.27 m *4*	1-	Q_{β^-}4932 *89*	β–(100%)	302, 1358, 1023, 721, 698
^{148}Pr(90)	2.0 m *1*	(4)		β–(100%)	302, 451, 698, 1557, 1106
^{148}Nd	5.76% *3*	0+	Δ–77418 *3*		
^{148}Pm	5.370 d *9*	1-	Q_{EC}540 *6*, Q_{β^-}2468 *6*	β–(100%)	1465, 550, 915, 611, 896
^{148}Pm(137.9)	41.29 d *11*	6-		β–(95.0% *4*), IT(5.0% *4*)	76, 62
^{148}Sm	7×10^{15} y *3* 11.3% *1*	0+	Δ–79347 *3*	α(100%)	
^{148}Eu	54.5 d *5*	5-	Q_{EC}3107 *17*, Q_{β^-}41 *17* Q_α2762 *17*	EC+β+(100%), α(9.4×10^{-7}% *28*)	550, 630, 611, 553, 726
^{148}Gd	74.6 y *30*	0+	Q_α3271.21 *3*	α(100%)	
^{148}Tb	60 m *1*	2-	Q_{EC}5765 *30*, Q_α2721 *35*	EC+β+(100%)	784, 489, 1079, 632, 1863
^{148}Tb(90.1)	2.20 m *5*	9+		EC+β+(100%)	784, 632, 882, 395, 489
^{148}Dy	3.1 m *1*	0+	Q_{EC}2682 *10*	EC+β+(100%)	620, 1247, 178, 951, 1046
^{148}Ho	2.2 s *11*	1+	Q_{EC}(9400 *300*)	EC+β+(100%)	1677
^{148}Ho(0+y)	9.59 s *15*	6-		EC+β+(100%), ECp(0.08% *1*)	
^{148}Ho(694.4+y)	2.35 ms *4*	(10+)		IT(100%)	
^{148}Er	4.6 s *2*	0+	Q_{EC}(6700 *500*), Q_α(2600 *600*)	EC+β+(100%), ECp(~0.15%)	1653, 388, 197, 257, 632
^{148}Tm(x)0.7 s *2*		(10+)	Q_{EC}(12200 *800*), Q_α(3100 *900*)	EC+β+(100%)	
^{148}Yb		0+	Q_{EC}(8600 *1100*), Q_α(3300 *1100*)		
^{149}Cs			Q_{β^-}(9600 *500*)		
^{149}Ba	0.344 s *7*		Q_{β^-}(7500 *500*)	β–(100%), β–n(0.43% *12*)	
^{149}La	1.05 s *3*		Q_{β^-}(5700 *300*)	β–(100%), β–n(1.43% *28*)	
^{149}Ce	5.3 s *2*	(3/2-)	Q_{β^-}4190 *75*	β–(100%)	58, 380, 86, 893, 865
^{149}Pr	2.26 m *7*	(5/2+)	Q_{β^-}3397 *10*	β–(100%)	138, 165, 109, 333, 258
^{149}Nd	1.728 h *1*	5/2-	Q_{β^-}1691 *4*	β–(100%)	211, 114, 270, 655, 424
^{149}Pm	53.08 h *5*	7/2+	Q_{β^-}1071 *4*	β–(100%)	286, 859, 591, 23, 833
^{149}Sm	$>2\times10^{15}$ y 13.8% *1*	7/2-	Δ–77147 *3*		
^{149}Eu	93.1 d *4*	5/2+	Q_{EC}695 *4*, Q_α2402 *4*	EC(100%)	328, 277, 23, 255, 506
^{149}Gd	9.28 d *10*	7/2-	Q_{EC}1314 *4*, Q_α3100 *3*	EC+β+(100%), α(4.3×10^{-4}% *10*)	150, 299, 347, 749, 789
^{149}Tb	4.118 h *25*	1/2+	Q_{EC}3638 *5*, Q_α4077.2 *24*	EC+β+(83.3% *17*), α(16.7% *17*)	352, 165, 389, 652, 853
^{149}Tb(35.78)	4.16 m *4*	11/2-		EC+β+(99.978% *3*), α(0.022% *3*)	796, 651, 165, 773, 631
^{149}Dy	4.20 m *14*	(7/2-)	Q_{EC}3812 *10*, Q_α2835 *38*	EC+β+(100%)	101, 789, 1776, 654, 106
^{149}Dy(2661.1)	490 ms *15*	(27/2-)		IT(99.3% *3*), EC+β+(0.7% *3*)	361, 291, 787, 630, 560
^{149}Ho	21.1 s *2*	(11/2-)	Q_{EC}6014 *19*, Q_α(2150 *230*)	EC+β+(100%)	1091, 1073, 1584, 1737, 1663
^{149}Ho(48.8)	56 s *3*	(1/2+)		EC+β+(100%)	1035, 1736, 372, 1754, 693
^{149}Er	4 s *2*	(1/2+)	Q_{EC}(7800 *500*), Q_α(2400 *600*)	EC+β+(100%), ECp(7% *2*)	1748, 1578, 172, 1233, 344
^{149}Er(741.8)	8.9 s *2*	(11/2-)		EC+β+(96.5% *7*), IT(3.5% *7*), ECp(0.18% *7*)	1171, 172, 344, 1531, 1649
^{149}Tm	0.9 s *2*	(11/2-)	Q_{EC}(9800 *800*), Q_α(3000 *800*)	EC+β+(100%), ECp($0.2\%^{+2}_{-1}$)	796, 159, 417, 907, 955
^{149}Yb(0+x)		(1/2+,3/2+)	Q_{EC}(10100 *900*), Q_α(3180 *100*)		
^{150}Cs			Q_{β^-}(11500 *700*)		
^{150}Ba	0.3 s	0+	Q_{β^-}(6600 *600*)	β–(100%), β–n	
^{150}La	0.86 s *5*		Q_{β^-}(7800 *400*)	β–(100%), β–n(2.7% *3*)	
^{150}Ce	4.0 s *6*	0+	Q_{β^-}3010 *90*	β–(100%)	110
^{150}Pr	6.19 s *16*	(1)-	Q_{β^-}5690 *80*	β–(100%)	130, 723, 853, 1141, 721
^{150}Nd	$>1.1\times10^{19}$ y 5.64% *3*	0+	Δ–73694 *4*	β–β–	
^{150}Pm	2.68 h *2*	(1-)	Q_{EC}87 *20*, Q_{β^-}3454 *20*	β–(100%)	334, 1325, 1166, 832, 876
^{150}Sm	7.4% *1*	0+	Δ–77061 *3*		
^{150}Eu	36.9 y *9*	5(-)	Q_{EC}2261 *7*, Q_{β^-}971 *4* Q_α2238 *7*	EC+β+(100%)	334, 439, 584, 737, 1049
^{150}Eu(42.1)	12.8 h *1*	0-		EC+β+(11% *2*), β–(89% *2*), IT(<5×10^{-8}%)	334, 407, 1166, 921, 1223
^{150}Gd	1.79×10^{6} y *8*	0+	Q_α2809 *6*	α(100%)	
^{150}Tb	3.48 h *16*	(2-)	Q_{EC}4656 *9*, Q_α3587 *5*	EC+β+(100%), α(<0.05%)	638, 511, 496, 3384, 792
^{150}Tb(474)	5.8 m *2*	9+		EC+β+(100%)	638, 650, 438, 827, 343
^{150}Dy	7.17 m *5*	0+	Q_{EC}1794 *9*, Q_α4351.1 *15*	α(36% *5*), EC+β+(64% *5*)	397
^{150}Ho	72 s *4*	2-	Q_{EC}(7240 *100*), Q_α(3320 *110*)	EC+β+(100%)	803, 591, 653, 983
^{150}Ho(800)	23.3 s *3*	(9)+		EC+β+(100%)	
^{150}Er	18.5 s *7*	0+	Q_{EC}4108 *15*, Q_α(2270 *150*)	EC+β+(100%)	476, 130, 1014, 1022, 1152
^{150}Tm	2.2 s *2*	(6-)	Q_{EC}(11100 *500*), Q_α(2800 *700*)	EC+β+(100%), ECp(1.2% *3*)	437, 344, 172
^{150}Tm(671.6)	5.2 ms *3*	(10+)		IT(100%)	
^{150}Yb		0+	Q_{EC}(7800 *800*), Q_α(3000 *800*)		
^{150}Lu	35 ms *10*		Q_{EC}(13700 *900*), Q_α(3330 *100*)	p(80% *20*), EC+β+(20% *20*)	
^{151}Cs			Q_{β^-}(10500 *900*)		

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{151}Ba			Q_{β^-}(8500 *800*)		
^{151}La			Q_{β^-}(7000 *600*)		
^{151}Ce	1.02 s *6*		Q_{β^-}(5400 *300*)	β–(100%)	97, 119, 85, 53
^{151}Pr	18.90 s *7*	(1/2 TO 5/2-)	Q_{β^-}4101 *35*	β–(100%)	880, 189, 485, 495, 58
^{151}Nd	12.44 m *7*	(3/2)+	Q_{β^-}2442 *5*	β–(100%)	117, 256, 1181, 139, 175
^{151}Pm	28.40 h *4*	5/2+	Q_{β^-}1187 *5*	β–(100%)	340, 168, 275, 718, 446
^{151}Sm	90 y *8*	5/2-	Q_{β^-}76.7 *5*	β–(100%)	22
^{151}Eu	47.8% *15*	5/2+	Δ–74663 *3*		
^{151}Gd	124 d *1*	7/2-	Q_{EC} 464 *3*, Q_{α} 2653 *3*	EC(100%), α(1.0×10^{-6}% *6*)	154, 243, 175, 22, 308
^{151}Tb	17.609 h *1*	1/2(+)	Q_{EC} 2565 *4*, Q_{α} 3497 *4*	EC+β+(100%), α(9.5×10^{-3}% *15*)	287, 252, 108, 587, 479
^{151}Tb(99.54) 25 s *3*		(11/2-)		IT(93.8% *4*), EC+β+(6.2% *4*)	379, 831, 523, 504, 706
^{151}Dy	17.9 m *3*	7/2(-)	Q_{EC} 2870 *5*, Q_{α} 4180 *3*	α(5.6% *4*), EC+β+(94.4% *4*)	386, 49, 546, 176, 477
^{151}Ho	35.2 s *1*	(11/2-)	Q_{EC} 5124 *12*, Q_{α} 4695.1 *19*	EC+β+(78% *3*), α(22% *3*)	101, 253
^{151}Ho(41.4) 47.2 s *10*		(1/2+)		α(>40%)	101, 253
^{151}Er	23.5 s *13*	(7/2-)	Q_{EC} (5400 *300*), Q_{α} (3700 *300*)	EC+β+(100%)	638, 667, 256, 100, 642
^{151}Er(2585.5) 0.58 s *2*		(27/2-)		IT(95.3% *3*), EC+β+(4.7% *3*)	789, 597, 297, 414, 404
^{151}Tm(0+x)5.2 s *20*		(1/2+)	Q_{EC} (7400 *300*), Q_{α} (2800 *400*)	EC+β+(100%)	
^{151}Tm(0+y) 4.13 s *11*		(11/2-)		EC+β+(100%)	
^{151}Yb(0+x)~1.6 s		(1/2+)	Q_{EC} (9100 *300*), Q_{α} (3100 *600*)	EC+β+(100%), ECp	
^{151}Yb(0+y)~1.6 s		(11/2-)		EC+β+(100%), ECp	
^{151}Lu(x)85 ms *10*			Q_{EC} (11100 *700*), Q_{α} (3200 *800*)	p(~1%)	
^{152}Ba		0+	Q_{β^-}(7500 *900*)		
^{152}La			Q_{β^-}(9100 *700*)		
^{152}Ce	1.4 s *2*	0+	Q_{β^-}(4500 *500*)	β–(100%)	115, 98
^{152}Pr	3.63 s *12*	(4-)	Q_{β^-}(6400 *300*)	β–(100%)	164, 285, 1470, 1364, 73
^{152}Nd	11.4 m *2*	0+	Q_{β^-}1110 *78*	β–(100%)	279, 250, 44, 16, 294
^{152}Pm	4.12 m *8*	1+	Q_{β^-}3505 *72*	β–(100%)	122, 842, 961, 963, 696
^{152}Pm(150) 7.52 m *8*		4-		β–(100%)	
^{152}Pm(150+x) 13.8 m *2*		(8)		β–(<100%), IT(>0%)	
^{152}Sm	26.7% *2*	0+	Δ–74773 *3*		
^{152}Eu	13.537 y *6*	3-	Q_{EC} 1874.3 *8*, Q_{β^-}1818.8 *11*	EC+β+(72.1% *3*), β–(27.9% *3*)	122, 1408, 964, 1112, 1086
^{152}Eu(45.5998) 9.3116 h *13*		0-		EC+β+(28% *4*), β–(72% *4*)	842, 963, 122, 1389, 563
^{152}Eu(147.86) 96 m *1*		8-		IT(100%)	90, 18, 77, 13, 40
^{152}Gd	1.08×10^{14} y *8*	0+	Δ–74717 *3*, Q_{α} 2204.6 *14*	α(100%)	
	0.20% *1*				
^{152}Tb	17.5 h *1*	2-	Q_{EC} 3990 *40*, Q_{α} 3087 *44*	EC+β+(100%), α(<7×10^{-7}%)	344, 586, 271, 779, 411
^{152}Tb(501.74) 4.2 m *1*		8+		IT(78.8% *8*), EC+β+(21.2% *8*)	344, 411, 472, 519, 647
^{152}Dy	2.38 h *2*	0+	Q_{EC} 599 *40*, Q_{α} 3727 *4*	α(0.100% *7*), EC+β+(99.900% *7*)	257
^{152}Ho	161.8 s *3*	2-	Q_{EC} 6545 *31*, Q_{α} 4507.2 *13*	α(12% *3*), EC+β+(88% *3*)	102, 86, 178, 109
^{152}Ho(160) 50.0 s *4*		9+		α(10.8% *17*), EC+β+(89.2% *17*)	759, 684, 647, 614, 493
^{152}Er	10.3 s *1*	0+	Q_{EC} 3109 *10*, Q_{α} 4934.4 *16*	EC+β+(10% *4*), α(90% *4*)	179
^{152}Tm	8.0 s *10*	(2)-	Q_{EC} (8600 *300*), Q_{α} (4100 *400*)	EC+β+(100%)	808, 716, 673, 907, 1106
^{152}Tm(0+x) 5.2 s *6*		(9)+		EC+β+(100%)	
^{152}Yb	3.04 s *6*	0+	Q_{EC} 5470 *200*, Q_{α} (2900 *500*)	EC+β+(100%), ECp	482, 142, 317, 949, 827
^{152}Lu	0.7 s *1*	(5-,6-)	Q_{EC} (12500 *800*), Q_{α} (3220 *100*)	EC+β+(100%), ECp(15% *7*)	1531, 359, 313
^{153}Ba			Q_{β^-}(9500 *1100*)		
^{153}La			Q_{β^-}(8300 *900*)		
^{153}Ce			Q_{β^-}(6500 *600*)		
^{153}Pr	4.3 s *2*		Q_{β^-}(5500 *300*)	β–(100%)	192, 142, 50
^{153}Nd	28.9 s *4*	(3/2-)	Q_{β^-}3336 *25*	β–(100%)	418, 105, 475, 83, 345
^{153}Pm	5.4 m *2*	5/2-	Q_{β^-}1881 *11*	β–(100%)	36, 127, 28, 120, 91
^{153}Sm	46.27 h *1*	3/2+	Q_{β^-}808.2 *8*	β–(100%)	103, 70, 97, 75, 83
^{153}Sm(98.4) 10.6 ms *3*		11/2-		IT(100%)	33, 46, 58, 54, 12
^{153}Eu	52.2% *15*	5/2+	Δ–73377 *3*		
^{153}Gd	241.6 d *2*	3/2-	Q_{EC} 484.4 *11*	EC(100%)	97, 103, 70, 83, 75
^{153}Tb	2.34 d *1*	5/2+	Q_{EC} 1569 *4*, Q_{α} 2703 *5*	EC+β+(100%)	212, 171, 110, 102, 83
^{153}Dy	6.4 h *1*	7/2(-)	Q_{EC} 2170.4 *19*, Q_{α} 3559 *4*	EC+β+(99.9906% *14*), α(0.0094% *14*)	81, 214, 100, 254, 244
^{153}Ho	2.0 m *1*	11/2-	Q_{EC} 4130 *6*, Q_{α} 4052 *4*	EC+β+(99.949% *25*), α(0.051% *25*)	296, 637, 689, 1277, 1086
^{153}Ho(68) 9.3 m *5*		1/2+		EC+β+(99.82% *8*), α(0.18% *8*)	109, 366, 162, 271, 230
^{153}Er	37.1 s *2*	(7/2-)	Q_{EC} 4563 *11*, Q_{α} 4802.7 *15*	α(53% *3*), EC+β+(47% *3*)	
^{153}Tm	1.48 s *1*	(11/2-)	Q_{EC} 6459 *19*, Q_{α} 5248.4 *14*	α(91% *3*), EC+β+(9% *3*)	344, 172
^{153}Tm(43.2) 2.5 s *2*		(1/2+)		α(95% *syst*), EC+β+(5% *syst*)	344, 172
^{153}Yb	4.2 s *1*	7/2-	Q_{EC} (6700 *300*), Q_{α} (4100 *600*)	α(50% *syst*), EC+β+(50% *syst*)	673, 808
^{153}Lu(x)		11/2-	Q_{EC} (8800 *700*), Q_{α} (3200 *800*)		
^{154}La			Q_{β^-}(10320 *100*)		
^{154}Ce		0+	Q_{β^-}(5500 *700*)		
^{154}Pr	2.3 s *1*	(3+,2+)	Q_{β^-}(7400 *400*)	β–(100%)	162, 932, 71, 957, 562
^{154}Nd	25.9 s *2*	0+	Q_{β^-}2740 *140*	β–(100%)	152, 800, 181, 84, 130
^{154}Pm	1.73 m *10*	(0,1)	Q_{β^-}4044 *74*	β–(100%)	2058, 1394, 82, 2140, 839
^{154}Pm(0+x) 2.68 m *7*		(3,4)		β–(100%)	

Isotope (Energy)	Half-life, Width, or Abundance	Jπ	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{154}Sm	22.7% *2*	0+	Δ −72465 *3*		
^{154}Eu	8.593 y *4*	3-	Q_{EC} 717.3 *11*, Q_{β^-} 1968.4 *11*	β–(99.98% *1*), EC+β+(0.02% *1*)	185, 82
^{154}Eu(145.3)	46.3 m *4*	(8-)		IT(100%)	68, 101, 36, 32, 29
^{154}Gd	2.18% *3*	0+	Δ −73716 *3*		
^{154}Tb	21.5 h *4*	0	Q_{EC} 3562 *50*, Q_{β^-} 246 *51* Q_{α} 2221 *50*	EC+β+(100%), β–(<0.1%)	123, 1274, 2187, 722, 1997
^{154}Tb(0+v) 9.4 h *4*		3-		EC+β+(78.2% *7*), IT(21.8% *7*), β–(<0.1%)	
^{154}Tb(0+w) 22.7 h *5*		7-		EC+β+(98.2% *6*), IT(1.8% *6*)	
^{154}Dy	3.0×10^{6} y *15*	0+	Q_{α} 2947 *5*	α(100%)	
^{154}Ho	11.76 m *19*	(2)-	Q_{EC} 5751 *11*, Q_{α} 4042 *4*	EC+β+(99.981% *5*), α(0.019% *5*)	335, 412, 873, 569, 570
^{154}Ho(320)	3.10 m *14*	8+		EC+β+(100%), α(<0.001%)	
^{154}Er	3.73 m *9*	0+	Q_{EC} 2032 *10*, Q_{α} 4280 *3*	EC+β+(99.53% *13*), α(0.47% *13*)	27
^{154}Tm	8.1 s *3*	(2-)	Q_{EC} (8050 *110*), Q_{α} 5094 *50*	EC+β+(56% *15*), α(44% *15*)	
^{154}Tm(0+x)	3.30 s *7*	(9+)		α(90% *syst*), EC+β+(10% *syst*), IT	
^{154}Yb	0.404 s *14*	0+	Q_{EC} 4489 *52*, Q_{α} 5474.3 *19*	α(92.8% *20*), EC+β+(7.2% *20*)	133
^{154}Lu(0+x)	1.12 s *8*	(7+)	Q_{EC} (10100 *500*), Q_{α} (4500 *700*)	EC+β+(~100%)	
^{154}Hf	2 s *1*	0+	Q_{EC} (6700 *900*), Q_{α} (3400 *900*)	EC+β+(100%)	
^{155}La			Q_{β^-} (9400 *1100*)		
^{155}Ce			Q_{β^-} (7500 *900*)		
^{155}Pr			Q_{β^-} (6900 *500*)		
^{155}Nd	8.9 s *2*		Q_{β^-} 4220 *150*	β–(100%)	181, 419, 955, 67, 888
^{155}Pm	41.5 s *2*	(5/2-)	Q_{β^-} 3224 *30*	β–(100%)	778, 725, 410, 762, 53
^{155}Sm	22.3 m *2*	3/2-	Q_{β^-} 1626.9 *12*	β–(100%)	104, 246, 141, 31, 26
^{155}Eu	4.7611 y *13*	5/2+	Q_{β^-} 252.1 *11*	β–(100%)	87, 105, 45, 60, 27
^{155}Gd	14.80% *5*	3/2-	Δ −72080 *3*		
^{155}Gd(121.05)	31.97 ms *27*	11/2-		IT(100%)	87, 13, 21
^{155}Tb	5.32 d *6*	3/2+	Q_{EC} 821 *12*	EC(100%)	87, 105, 180, 262, 163
^{155}Dy	9.9 h *2*	3/2-	Q_{EC} 2094.5 *19*, Q_{α} 2610 *12*	EC+β+(100%)	227, 185, 1089.8, 1090.0, 906
^{155}Ho	48 m *1*	5/2+	Q_{EC} 3102 *20*, Q_{α} 3146 *24*	EC+β+(100%)	240, 136, 45, 39, 325
^{155}Er	5.3 m *3*	7/2-	Q_{EC} 3843 *55*, Q_{α} 4119 *50*	EC+β+(99.978% *7*), α(0.022% *7*)	110, 242, 234, 512, 124
^{155}Tm	21.6 s *2*	(11/2-)	Q_{EC} 5577 *52*, Q_{α} 4571 *5*	EC+β+(98.1% *3*), α(1.9% *3*)	227, 532, 88, 1057, 607
^{155}Tm(41)	45 s *3*	(1/2+)		EC+β+(>92%), α(<8%)	88, 323, 507, 247, 152
^{155}Yb	1.75 s *5*	(7/2-)	Q_{EC} (6100 *300*), Q_{α} 5337 *3*	α(89% *4*), EC+β+(11% *4*)	236, 175, 362, 378, 205
^{155}Lu	140 ms *20*	(1/2+,3/2+)	Q_{EC} (7900 *300*), Q_{α} (5771 *16*)	α	
^{155}Lu(21)	68 ms *5*	(11/2-)		α(79% *4*), EC+β+(21% *4*)	
^{155}Lu(1798)	2.60 ms *7*	(25/2-)		α(~100%)	
^{155}Hf	0.89 s *12*		Q_{EC} (7900 *600*), Q_{α} (4600 *700*)	EC+β+(100%), α	
^{156}Ce		0+	Q_{β^-} (6650 *100*)		
^{156}Pr			Q_{β^-} (8300 *700*)		
^{156}Nd	5.47 s *11*	0+	Q_{β^-} (3900 *400*)	β–(100%)	150, 157, 85, 274, 161
^{156}Pm	26.70 s *10*	4(-)	Q_{β^-} 5155 *35*	β–(100%)	174, 1148, 117, 267, 1259
^{156}Sm	9.4 h *2*	0+	Q_{β^-} 722 *8*	β–(100%)	87, 204, 166, 38, 291
^{156}Eu	15.19 d *8*	0+	Q_{β^-} 2451 *5*	β–(100%)	812, 89, 1231, 1154, 1242
^{156}Gd	20.47% *4*	0+	Δ −72545 *3*		
^{156}Tb	5.35 d *10*	3-	Q_{EC} 2444 *4*, Q_{β^-} 434 *7*	EC+β+(100%), β–	534, 199, 1222, 89, 356
^{156}Tb(49.630+x)	24.4 h *10*	(7-)		IT(100%)	
^{156}Tb(88.4)	5.3 h *2*	(0+)		IT, EC+β+	88
^{156}Dy	0.06% *1*	0+	Δ −70534 *7*		
^{156}Ho	56 m *1*	(4+)	Q_{EC} (5060 *200*), Q_{α} (2830 *200*)	EC+β+(100%)	266, 138, 366, 884, 684
^{156}Er	19.5 m *10*	0+	Q_{EC} (1220 *210*), Q_{α} 3445 *74*	EC+β+(100%)	35, 30, 134, 352, 186
^{156}Tm	83.8 s *18*	2-	Q_{EC} 7444 *45*, Q_{α} 4344 *50*	EC+β+(99.936% *10*), α(0.064% *10*)	345, 453, 585.9, 585.9, 959
^{156}Tm(0+x)	19 s *3*			α	
^{156}Yb	26.1 s *7*	0+	Q_{EC} 3577 *52*, Q_{α} 4812 *7*	EC+β+(90% *2*), α(10% *2*)	115
^{156}Lu(0+x)	~0.5 s		Q_{EC} (9400 *300*), Q_{α} 5593 *50*	α(~95%), EC+β+(5%)	
^{156}Lu(0+y)	180 ms *20*			α(>75%), EC+β+(<25%)	
^{156}Hf	25 ms *4*	0+	Q_{EC} 5910 *200*, Q_{α} 6033 *10*	α(>81%)	
^{156}Hf(1959)	444 μs *17*			α	
^{156}Ta(x)	>10 ms	(9+)	Q_{EC} (11600 *700*), Q_{α} (5100 *900*)	EC+β+	
^{157}Ce			Q_{β^-} (8500 *1100*)		
^{157}Pr			Q_{β^-} (7400 *900*)		
^{157}Nd			Q_{β^-} (5700 *600*)		
^{157}Pm	10.56 s *10*	(5/2-)	Q_{β^-} (4500 *300*)	β–(100%)	161, 188, 571, 851, 164
^{157}Sm	482 s *4*	(3/2-)	Q_{β^-} 2734 *50*	β–(100%)	198, 196, 394, 121, 1463
^{157}Eu	15.18 h *3*	5/2+	Q_{β^-} 1363 *6*	β–(100%)	64, 411, 371, 55, 619
^{157}Gd	15.65% *3*	3/2-	Δ −70834 *3*		
^{157}Tb	71 y *7*	3/2+	Q_{EC} 60.1 *3*	EC(100%)	55
^{157}Dy	8.14 h *4*	3/2-	Q_{EC} 1341 *6*	EC+β+(100%)	326, 182, 83, 61, 265
^{157}Dy(199.38)	21.6 ms *16*	11/2-		IT(100%)	37, 87, 61, 148, 14

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{157}Ho	12.6 m *2*	7/2-	Q_{EC} 2540 *50*, Q_{α} 2006 *51*	EC+β+(100%)	280, 341, 193, 87, 61
^{157}Er	18.65 m *10*	3/2-	Q_{EC} 3500 *62*, Q_{α} 3336 *80*	EC+β+(100%)	53, 391, 122, 150, 67
^{157}Er(155.4)	76 ms *6*	(9/2+)		IT(100%)	
^{157}Tm	3.63 m *9*	1/2+	Q_{EC} 4481 *71*, Q_{α} 3690 *110*	EC+β+(100%)	455, 386, 348, 110, 357
^{157}Yb	38.6 s *10*	7/2-	Q_{EC} 5500 *120*, Q_{α} 4622 *50*	EC+β+(99.5%), α(0.5%)	23, 242, 231, 164, 340
^{157}Lu	6.8 s *18*	(1/2+,3/2+)	Q_{EC} 6933 *53*, Q_{α} 5096 *3*	α(>0%)	
^{157}Lu(26)	4.79 s *12*	(11/2-)		α(6% *2*), EC+β+(94% *2*)	968, 950, 881, 876, 800
^{157}Hf	110 ms *6*	7/2-	Q_{EC} (7500 *300*), Q_{α} 5881 *50*	α(86% *9*), EC+β+(14% *9*)	
^{157}Ta	5.3 ms *18*		Q_{EC} (9300 *700*), Q_{α} 6382 *50*	α(>77%)	
^{157}Ta(x)	1.7 ms *1*			α(>0%)	
^{158}Pr			Q_{β^-}(9230 *100*)		
^{158}Nd		0+	Q_{β^-}(4800 *700*)		
^{158}Pm	4.8 s *5*		Q_{β^-}(6200 *400*)	β–(100%)	73
^{158}Sm	5.30 m *3*	0+	Q_{β^-}1999 *15*	β–(100%)	189, 364, 325, 224, 321
^{158}Eu	45.9 m *2*	(1-)	Q_{β^-}3485 *77*	β–(100%)	944, 977, 898, 80, 1108
^{158}Gd	24.84% *12*	0+	Δ–70700 *3*		
^{158}Tb	180 y *11*	3-	Q_{EC} 1220.0 *9*, Q_{β^-}936.7 *24*	EC+β+(83.4% *7*), β–(16.6% *7*)	944, 962, 80, 182, 780
^{158}Tb(110.3)	10.70 s *17*	0-		IT(100%), β–(<0.6%), EC+β+(<0.01%)	110
^{158}Dy	0.10% *1*	0+	Δ–70417 *4*		
^{158}Ho	11.3 m *4*	5+	Q_{EC} 4230 *30*	EC+β+(100%)	218, 99, 946, 949, 847
^{158}Ho(67.200)	28 m *2*	2-		EC+β+(<19%), IT(>81%)	67
^{158}Ho(180)	21.3 m *23*	(9+)		EC+β+(>93%), IT(<7%)	406, 839, 1484, 166, 187
^{158}Er	2.29 h *6*	0+	Q_{EC} (900 *100*), Q_{α} (2690 *110*)	EC(100%)	72, 387, 249, 46, 358
^{158}Tm	3.98 m *6*	2-	Q_{EC} 6599 *51*, Q_{α} (3540 *120*)	EC+β+(100%)	192, 335, 1150, 628, 851
^{158}Yb	1.49 m *13*	0+	Q_{EC} (2670 *120*), Q_{α} 4171 *8*	α(~0.0021% *12*), EC+β+(100%)	74, 253, 160, 148
^{158}Lu(x)	10.6 s *3*		Q_{EC} (8670 *120*), Q_{α} 4790 *50*	α(0.91% *20*), EC+β+(99.09% *20*)	
^{158}Hf	2.86 s *18*	0+	Q_{EC} 5102 *72*, Q_{α} 5403 *4*	α(44% *3*), EC+β+(56% *3*)	
^{158}Ta(x)	36.8 ms *16*		Q_{EC} (10900 *500*), Q_{α} 6209 *50*	α(93% *6*), EC+β+(7% *6*)	
^{158}Ta(y)	46 ms *4*			α	
^{158}W	0.9 ms *3*	0+	Q_{EC} (7100 *900*), Q_{α} 6600 *31*	α(100%)	
^{158}W (1880)	0.16 ms *5*	8+		α	
^{159}Pr			Q_{β^-}(8200 *1100*)		
^{159}Nd			Q_{β^-}(6800 *900*)		
^{159}Pm			Q_{β^-}(5500 *600*)		
^{159}Sm	11.37 s *15*	(5/2-)	Q_{β^-}(3800 *300*)	β–(100%)	190, 862, 254, 797, 179
^{159}Eu	18.1 m *1*	5/2+	Q_{β^-}2514 *8*	β–(100%)	68, 79, 96, 146, 665
^{159}Gd	18.479 h *4*	3/2-	Q_{β^-}970.6 *7*	β–(100%)	364, 58, 348, 226, 581
^{159}Tb	100%	3/2+	Δ–69542 *3*		
^{159}Dy	144.4 d *2*	3/2-	Q_{EC} 365.6 *12*	EC(100%)	58, 348, 79, 290, 138
^{159}Ho	33.05 m *11*	7/2-	Q_{EC} 1838 *3*	EC+β+(100%)	121, 132, 310, 253, 178
^{159}Ho(205.91)	8.30 s *8*	1/2+		IT(100%)	206, 166, 40
^{159}Er	36 m *1*	3/2-	Q_{EC} 2768.6 *20*, Q_{α} 2169 *12*	EC+β+(100%)	625, 649, 206, 166, 581
^{159}Tm	9.13 m *16*	5/2+	Q_{EC} 3845 *65*, Q_{α} 2912 *69*	EC+β+(100%)	38, 85, 271, 220, 289
^{159}Yb	1.58 m *14*	5/2(-)	Q_{EC} 4979 *90*, Q_{α} 4050 *100*	EC+β+(100%)	166, 177, 390, 330, 176
^{159}Lu	12.1 s *10*		Q_{EC} 6019 *86*, Q_{α} 4490 *48*	EC+β+(99.96% *syst*), α(0.04% *syst*)	151, 188, 369
^{159}Hf	5.6 s *4*		Q_{EC} (6900 *300*), Q_{α} 5223 *50*	EC+β+(59% *5*), α(41% *5*)	
^{159}Ta	0.57 s *18*		Q_{EC} (8300 *300*), Q_{α} 5662 *50*	α(80% *5*), EC+β+(20% *5*)	
^{159}W	7.3 ms *27*		Q_{EC} (8700 *600*), Q_{α} 6443 *50*	α(~99.5%), EC+β+(~0.5%)	
^{160}Nd		0+	Q_{β^-}(5960 *100*)		
^{160}Pm			Q_{β^-}(7300 *700*)		
^{160}Sm	9.6 s *3*	0+	Q_{β^-}(3000 *400*)	β–(100%)	
^{160}Eu	38 s *4*	1(-)	Q_{β^-}(4580 *200*)	β–(100%)	173, 514, 413, 822, 995
^{160}Gd	21.86% *4*	0+	Δ–67952 *3*		
^{160}Tb	72.3 d *2*	3-	Q_{EC} 105.6 *10*, Q_{β^-}1835.3 *13*	β–(100%)	879, 299, 966, 1178, 87
^{160}Dy	2.34% *6*	0+	Δ–69682 *3*		
^{160}Ho	25.6 m *3*	5+	Q_{EC} 3290 *15*	EC+β+(100%)	728, 879, 962, 645, 966
^{160}Ho(59.98)	5.02 h *5*	2-		IT(65% *3*), EC+β+(35% *3*)	728, 879, 962, 966, 645
^{160}Ho(169.6+x)	3 s	(9+)		IT(100%)	
^{160}Er	28.58 h *9*	0+	Q_{EC} 329 *53*, Q_{α} 2047 *51*	EC(100%)	7, 60
^{160}Tm	9.4 m *3*	1-	Q_{EC} 5600 *300*, Q_{α} (2600 *400*)	EC+β+(100%)	126, 729, 264, 1369, 854
^{160}Tm(70)	74.5 s *15*	5		EC+β+(15% *5*), IT(85% *5*)	264, 126, 376, 739, 861
^{160}Yb	4.8 m *2*	0+	Q_{EC} (2300 *400*), Q_{α} (3670 *220*)	EC+β+(100%)	173.7, 216, 140, 132, 174.4
^{160}Lu(0+z)	36.1 s *3*		Q_{EC} (7880 *100*), Q_{α} (4110 *240*)	EC+β+(100%), α(<1×10^{-4}%)	
^{160}Lu(0+x)	40 s *1*			EC+β+(<100%), α	
^{160}Hf	13.6 s *2*	0+	Q_{EC} (4370 *230*), Q_{α} 4903 *3*	EC+β+(99.3% *2*), α(0.7% *2*)	
^{160}Ta	1.55 s *4*		Q_{EC} (9900 *300*), Q_{α} 5446 *50*	EC+β+(66%), α(34%)	
^{160}W	91 ms *5*	0+	Q_{EC} 6530 *210*, Q_{α} 6072 *10*	α(87% *8*)	
^{160}Re	0.79 ms *16*		Q_{EC} (12200 *700*), Q_{α} 6699 *13*	p(91% *10*), α(9% *5*)	
^{161}Nd			Q_{β^-}(7900 *1100*)		

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{161}Pm			Q_{β^-}(6500 *900*)		
^{161}Sm			Q_{β^-}(4800 *600*)		
^{161}Eu	26 s *3*		Q_{β^-}(3700 *300*)	β–(100%)	314, 164, 92, 72, 294
^{161}Gd	3.66 m *5*	5/2-	Q_{β^-}1955.6 *14*	β–(100%)	361, 315, 102, 284, 56
^{161}Tb	6.88 d *3*	3/2+	Q_{β^-}593.1 *14*	β–(100%)	26, 49, 75, 57, 88
^{161}Dy	18.9% *2*	5/2+	Δ –68065 *3*		
^{161}Ho	2.48 h *5*	7/2-	Q_{EC} 859 *3*	EC(100%)	26, 103, 77, 59, 157
^{161}Ho(211.14)	6.76 s *7*	1/2+		IT(100%)	211
^{161}Er	3.21 h *3*	3/2-	Q_{EC} 2002 *9*	EC+β+(100%)	827, 211, 593, 315, 932
^{161}Tm	33 m *3*	7/2+	Q_{EC} 3164 *89*, Q_{α} 2430 *100*	EC+β+(100%)	46, 1648, 84, 60, 172
^{161}Yb	4.2 m *2*	3/2-	Q_{EC} (4150 *200*), Q_{α} (3080 *230*)	EC+β+(100%)	78, 600, 631, 570, 144
^{161}Lu	77 s *2*	(5/2+)	Q_{EC} 5300 *100*, Q_{α} (3900 *300*)	EC+β+(100%)	111, 100, 44, 256, 156
^{161}Lu(135.8+x)	7.3 ms *4*	(9/2-)		IT(100%)	
^{161}Hf(0+x)	16.8 s *8*	(13/2+)	Q_{EC} (6320 *250*), Q_{α} 4722 *50*	EC+β+(99.71% *5*), α(0.29% *5*)	
^{161}Ta(x)	2.7 s *2*		Q_{EC} 7491 *89*, Q_{α} 5280 *50*	EC+β+(~95%), α(~5%)	
^{161}W (x)	410 ms *40*		Q_{EC} (8100 *300*), Q_{α} 5924 *50*	α(82% *26*)	
^{161}Re(x)	10 ms^{+15}_{-5}		Q_{EC} (9800 *700*), Q_{α} 6439 *50*	α(~100%)	
^{162}Pm			Q_{β^-}(8450 *100*)		
^{162}Sm		0+	Q_{β^-}(3900 *700*)		
^{162}Eu	10.6 s *10*		Q_{β^-}(5600 *400*)	β–(100%)	
^{162}Gd	8.4 m *2*	0+	Q_{β^-}1394 *37*	β–(100%)	442, 403, 39, 341, 302
^{162}Tb	7.60 m *15*	1-	Q_{β^-}2506 *36*	β–(100%)	260, 808, 888, 185, 882
^{162}Dy	25.5% *2*	0+	Δ –68190 *3*		
^{162}Ho	15.0 m *10*	1+	Q_{EC} 2140 *4*, Q_{β^-} 296 *4*	EC+β+(100%)	81, 1319, 1373, 1188, 392
^{162}Ho(106)	67.0 m *7*	6-		IT(62%), EC+β+(38%)	185, 1220, 283, 937, 81
^{162}Er	0.14% *1*	0+	Δ –66346 *4*		
^{162}Tm	21.70 m *19*	1-	Q_{EC} 4839 *30*, Q_{α} 2255 *43*	EC+β+(100%)	102, 799, 228, 901, 900
^{162}Tm(66.9+x)	24.3 s *17*	5+		IT(82% *4*), EC+β+(18% *4*)	
^{162}Yb	18.87 m *19*	0+	Q_{EC} (1660 *210*), Q_{α} (3010 *230*)	EC+β+(100%)	163, 119, 576, 45, 608
^{162}Lu	1.37 m *2*	(1-)	Q_{EC} 6960 *80*, Q_{α} (3370 *250*)	EC+β+(100%)	167, 632, 799, 321, 825
^{162}Lu(0+x)	1.5 m *2*	(4-)		EC+β+(<100%)	
^{162}Lu(0+y)	1.9 m			EC+β+(<100%)	
^{162}Hf	37.6 s *8*	0+	Q_{EC} (3710 *220*), Q_{α} 4417 *6*	EC+β+(99.9937% *14*), α(0.0063% *14*)	174, 196, 410, 22
^{162}Ta(x)	3.52 s *12*		Q_{EC} (9260 *130*), Q_{α} 5007 *50*	EC+β+(99.926% *10*), α(0.074% *10*)	
^{162}W	1.39 s *4*	0+	Q_{EC} 5769 *88*, Q_{α} 5674 *3*	EC+β+(53% *3*), α(47% *3*)	
^{162}Re(x)	0.10 s *3*		Q_{EC} (11500 *500*), Q_{α} 6274 *50*	EC+β+(<97%), α(>3%)	
^{162}Os	1.9 ms *7*	0+	Q_{EC} (7600 *900*), Q_{α} 6779 *31*	α(100%)	
^{163}Pm			Q_{β^-}(7600 *1100*)		
^{163}Sm			Q_{β^-}(5700 *900*)		
^{163}Eu			Q_{β^-}(4900 *600*)		
^{163}Gd	68 s *3*	(5/2-)	Q_{β^-}(3100 *300*)	β–(100%)	288, 214, 1562, 1685, 373
^{163}Tb	19.5 m *3*	3/2+	Q_{β^-}1785 *4*	β–(100%)	351, 390, 495, 422, 533
^{163}Dy	24.9% *2*	5/2-	Δ –66390 *3*		
^{163}Ho	4570 y *25*	7/2-	Q_{EC} 2.565 *14*	EC(100%)	
^{163}Ho(297.88)	1.09 s *3*	1/2+		IT(100%)	298
^{163}Er	75.0 m *4*	5/2-	Q_{EC} 1210 *5*	EC+β+(100%)	1114, 436, 440, 298, 876
^{163}Tm	1.810 h *5*	1/2+	Q_{EC} 2439 *3*, Q_{α} 2176 *6*	EC+β+(100%)	104, 69, 241, 1434, 1398
^{163}Yb	11.05 m *25*	3/2-	Q_{EC} 3370 *100*, Q_{α} 2780 *100*	EC+β+(100%)	860, 64, 123, 1747, 326
^{163}Lu	238 s *8*	(1/2-)	Q_{EC} 4600 *200*, Q_{α} 3530 *230*	EC+β+(100%)	163, 54, 396, 372, 151
^{163}Hf	40.0 s *6*		Q_{EC} (5500 *400*), Q_{α} (4000 *300*)	EC+β+(100%)	71, 62, 45, 688, 133
^{163}Ta	10.6 s *10*		Q_{EC} (6800 *300*), Q_{α} 4749 *50*	EC+β+(~99.8%), α(~0.2%)	396, 451, 449, 210, 713
^{163}W	2.75 s *25*		Q_{EC} (7700 *300*), Q_{α} 5520 *50*	EC+β+(59% *5*), α(41% *5*)	
^{163}Re	260 ms *40*		Q_{EC} (8800 *300*), Q_{α} 6008 *50*	α(64% *18*), EC+β+(36% *18*)	
^{163}Os(x)			Q_{EC} (9400 *600*), Q_{α} 6674 *50*	α, EC+β+	
^{164}Sm		0+	Q_{β^-}(4930 *100*)		
^{164}Eu			Q_{β^-}(6600 *700*)		
^{164}Gd	45 s *3*	0+	Q_{β^-}(2300 *400*)	β–(100%)	
^{164}Tb	3.0 m *1*	(5+)	Q_{β^-}3890 *100*	β–(100%)	169, 755, 215, 688, 611
^{164}Dy	28.2% *2*	0+	Δ –65977 *3*		
^{164}Ho	29 m *1*	1+	Q_{EC} 986.8 *22*, Q_{β^-} 962.8 *23*	EC(60% *5*), β–(40% *5*)	73, 762, 688
^{164}Ho(140)	37.5 m^{+15}_{-5}	6-		IT(100%)	37, 57, 94, 46
^{164}Er	1.61% *2*	0+	Δ –65953 *3*		
^{164}Tm	2.0 m *1*	1+	Q_{EC} 3963 *19*	EC+β+(100%)	91, 1155, 769, 208, 860
^{164}Tm(0+x)	5.1 m *1*	6-		IT(~80%), EC+β+(~20%)	
^{164}Yb	75.8 m *17*	0+	Q_{EC} (1000 *1000*), Q_{α} (2640 *120*)	EC(100%)	41, 675, 391, 447, 638
^{164}Lu	3.14 m *3*		Q_{EC} 6237 *72*, Q_{α} (3300 *300*)	EC+β+(100%)	123, 741, 262, 864, 881
^{164}Hf	111 s *8*	0+	Q_{EC} (2990 *230*), Q_{α} (4000 *300*)	EC+β+(100%)	122, 153, 314, 31, 130
^{164}Ta	14.2 s *3*	(3+)	Q_{EC} (8500 *400*), Q_{α} (4600 *500*)	EC+β+(100%)	211, 377, 605, 862, 816
^{164}W	6.0 s *3*	0+	Q_{EC} (5000 *400*), Q_{α} 5278.8 *21*	EC+β+(95.6% *9*), α(4.4% *9*)	
^{164}Re	0.88 s *24*		Q_{EC} (10600 *300*), Q_{α} 5923 *50*	α(~58%), EC+β+(~42%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{164}Os	41 ms *20*	0+	Q_{EC} 7090 *210*, Q_α 6478 *21*	α(~98%), EC+β+(~2%)	
^{165}Sm			Q_{β^-}(6800 *1100*)		
^{165}Eu			Q_{β^-}(5900 *900*)		
^{165}Gd			Q_{β^-}(4200 *500*)		
^{165}Tb	2.11 m *10*	(3/2+)	Q_{β^-}(2960 *200*)	β–(100%)	1179, 539, 1292, 1665, 184
^{165}Dy	2.334 h *1*	7/2+	Q_{β^-}1286.1 *19*	β–(100%)	95, 362, 633, 715, 280
^{165}Dy(108.160)	1.257 m *6*	1/2-		IT(97.76% *11*), β–(2.24% *11*)	108
^{165}Ho	100%	7/2-	Δ –64907 *3*		
^{165}Er	10.36 h *4*	5/2-	Q_{EC} 376.0 *20*	EC(100%)	
^{165}Tm	30.06 h *3*	1/2+	Q_{EC} 1592.5 *15*	EC+β+(100%)	243, 47, 297, 806, 54
^{165}Yb	9.9 m *3*	5/2-	Q_{EC} 2762 *20*, Q_α 2602 *22*	EC+β+(100%)	80, 69, 1090, 118, 31
^{165}Lu(0+x)	10.74 m *10*	(7/2+)	Q_{EC} 3920 *80*, Q_α 3360 *120*	EC+β+(100%)	
^{165}Lu(0+z)	12 m	1/2+			
^{165}Hf	76 s *4*	(5/2-)	Q_{EC} (4600 *400*), Q_α (3800 *400*)	EC+β+(100%)	180, 773
^{165}Ta	31.0 s *15*		Q_{EC} (5800 *400*), Q_α (4400 *300*)	EC+β+(100%)	311, 199, 163, 94, 23
^{165}W	5.1 s *5*		Q_{EC} (7000 *240*), Q_α 5032 *50*	EC+β+(100%), α(<0.2%)	
^{165}Re	2.4 s *6*		Q_{EC} 8120 *110*, Q_α 5658 *50*	EC+β+(87% *3*), α(13% *3*)	
^{165}Os(x)65 ms$^{+70}_{-30}$			Q_{EC} (8800 *300*), Q_α 6317 *50*	α(>60%), EC+β+(<40%)	
^{165}Ir			Q_{EC} (10300 *500*), Q_α (6800 *700*)		
^{166}Eu			Q_{β^-}(7800 *100*)		
^{166}Gd		0+	Q_{β^-}(3300 *700*)		
^{166}Tb			Q_{β^-}(4900 *300*)		
^{166}Dy	81.6 h *1*	0+	Q_{β^-}486.2 *19*	β–(100%)	82, 28, 54, 426, 372
^{166}Ho	26.83 h *2*	0-	Q_{β^-}1854.9 *9*	β–(100%)	81, 1379, 1582, 1662, 1750
^{166}Ho(5.985)1.20×10^3 y *18*		(7)-		β–(100%)	184, 810, 712, 280, 81
^{166}Er	33.6% *2*	0+	Δ –64934 *3*		
^{166}Tm	7.70 h *3*	2+	Q_{EC} 3040 *11*	EC+β+(100%)	779, 2052, 184, 1274, 81
^{166}Yb	56.7 h *1*	0+	Q_{EC} 304 *14*, Q_α 2330 *8*	EC(100%)	82
^{166}Lu	2.65 m *10*	(6-)	Q_{EC} 5480 *160*, Q_α 2970 *160*	EC+β+(100%)	228, 338, 368, 102, 997
^{166}Lu(34.37)	1.41 m *10*	(3-)		EC(58% *5*), IT(42% *5*)	228, 102, 285, 830, 812
^{166}Lu(42.9)	2.12 m *10*	(0-)		EC+β+(>80%), IT(<20%)	1427, 2099, 1257, 1359, 1530
^{166}Hf	6.77 m *30*	0+	Q_{EC} (2300 *300*), Q_α (3600 *400*)	EC+β+(100%)	79, 342, 408, 483, 378
^{166}Ta	34.4 s *5*	(2)+	Q_{EC} (7700 *400*), Q_α (4300 *400*)	EC+β+(100%)	159, 312, 810, 651, 847
^{166}W	18.8 s *4*	0+	Q_{EC} (4200 *300*), Q_α 4857 *4*	EC+β+(99.965% *12*), α(0.035% *12*)	126, 225, 173, 396, 270
^{166}Re	2.8 s *3*		Q_{EC} (10040 *140*), Q_α 5637 *50*	α(<8%)	
^{166}Os	181 ms *38*	0+	Q_{EC} 6260 *100*, Q_α 6131 *6*	α(72% *13*), EC+β+(28% *13*)	
^{166}Ir	>5 ms		Q_{EC} (12100 *500*), Q_α 6703 *50*	α(99%)	
^{167}Eu			Q_{β^-}(7000 *1100*)		
^{167}Gd			Q_{β^-}(5100 *700*)		
^{167}Tb			Q_{β^-}(4100 *400*)		
^{167}Dy	6.20 m *8*	(1/2-)	Q_{β^-}2350 *60*	β–(100%)	570, 259, 310, 250, 133
^{167}Ho	3.1 h *1*	7/2-	Q_{β^-}1007 *5*	β–(100%)	347, 321, 238, 208, 386
^{167}Er	22.95% *15*	7/2+	Δ –63299 *3*		
^{167}Er(207.802)	2.269 s *6*	1/2-		IT(100%)	208
^{167}Tm	9.25 d *2*	1/2+	Q_{EC} 748.4 *15*	EC(100%)	208, 57, 532, 265, 347
^{167}Yb	17.5 m *2*	5/2-	Q_{EC} 1954 *4*, Q_α 2156 *6*	EC+β+(100%)	113, 106, 176, 63, 117
^{167}Lu	51.5 m *10*	7/2+	Q_{EC} 3130 *100*, Q_α 2850 *100*	EC+β+(100%)	30, 239, 213, 1267, 34
^{167}Hf	2.05 m *5*	(5/2-)	Q_{EC} (4000 *230*), Q_α (3480 *230*)	EC+β+(100%)	315, 175, 140
^{167}Ta	1.4 m *3*	(3/2+)	Q_{EC} (5000 *500*), Q_α (3900 *500*)	EC+β+(100%)	296, 278, 214, 140, 119
^{167}W	19.9 s *5*	(7/2-)	Q_{EC} (6200 *300*), Q_α 4668 *50*	EC+β+, α	
^{167}Re	6.1 s *2*		Q_{EC} (7400 *300*), Q_α (5260 *110*)	EC+β+(~99.3%), α(~0.7%)	
^{167}Os	0.83 s *12*		Q_{EC} (8400 *300*), Q_α 5979 *50*	α(67% *9*), EC+β+(33% *9*)	
^{167}Ir	>5 ms		Q_{EC} (9300 *300*), Q_α 6495 *50*	α	
^{168}Gd		0+	Q_{β^-}(4400 *900*)		
^{168}Tb			Q_{β^-}(6000 *600*)		
^{168}Dy	8.7 m *3*	0+	Q_{β^-}(1600 *300*)	β–(100%)	193, 487, 443, 630, 437
^{168}Ho	2.99 m *7*	3+	Q_{β^-}2914 *29*	β–(100%)	741, 821, 816, 80, 184
^{168}Ho(59)	132 s *4*	(6+)		IT(>99.5%), β–(<0.5%)	59
^{168}Er	26.8% *2*	0+	Δ –62999 *3*		
^{168}Tm	93.1 d *2*	3(+)	Q_{EC} 1679.1 *19*, Q_{β^-}257 *4*	EC+β+(99.990% *7*), β–(0.010% *7*)	198, 816, 448, 184, 741
^{168}Yb	0.13% *1*	0+	Δ –61577 *4*		
^{168}Lu	5.5 m *1*	(6-)	Q_{EC} 4475 *80*, Q_α 2463 *82*	EC+β+(100%)	1484, 229, 111.8, 111.8, 540
^{168}Lu(220)	6.7 m *4*	3+		EC+β+(>95%), IT(<5%)	
^{168}Hf	25.95 m *20*	0+	Q_{EC} (1800 *130*), Q_α (3270 *150*)	EC+β+(100%)	184, 157, 324, 248, 241
^{168}Ta	2.0 m *1*	(3+)	Q_{EC} (6700 *400*), Q_α (3700 *400*)	EC+β+(100%)	124, 262, 751, 907, 876
^{168}W	51 s *2*	0+	Q_{EC} (3800 *400*), Q_α 4506 *12*	EC+β+(~100%), α(2.7×10^{-3}% *5*)	179, 146, 352, 182, 157
^{168}Re	4.4 s *1*	(6+)	Q_{EC} (9100 *400*), Q_α 5063 *13*	EC+β+(~100%), α(~5×10^{-3}%)	199, 363, 480, 558, 1025
^{168}Os	2.2 s *1*	0+	Q_{EC} (5800 *400*), Q_α 5818 *3*	EC+β+(51% *3*), α(49% *3*)	
^{168}Ir			Q_{EC} (11300 *300*), Q_α (6560 *110*)	α	
^{168}Pt		0+	Q_{EC} (7520 *240*), Q_α 6991 *20*	α	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{169}Gd			Q_{β^-}(6190 *100*)		
^{169}Tb			Q_{β^-}(5500 *700*)		
^{169}Dy	39 s *8*	(5/2-)	Q_{β^-}3200 *300*	β–(100%)	1578
^{169}Ho	4.7 m *1*	7/2-	Q_{β^-}2124 *20*	β–(100%)	788, 853, 761, 778, 152
^{169}Er	9.40 d *2*	1/2-	Q_{β^-}351.1 *11*	β–(100%)	8, 110, 118
^{169}Tm	100%	1/2+	Δ –61282 *3*		
^{169}Yb	32.026 d *5*	7/2+	Q_{EC} 909 *4*	EC(100%)	63, 198, 177, 110, 131
^{169}Yb(24.199) 46 s *2*		1/2-		IT(100%)	24
^{169}Lu	34.06 h *5*	7/2+	Q_{EC} 2293 *3*, Q_α 2434 *5*	EC+β+(100%)	961, 191, 1450, 890, 1467
^{169}Lu(29.0) 160 s *10*		1/2-		IT(100%)	29
^{169}Hf	3.24 m *4*	(5/2)-	Q_{EC} 3269 *82*, Q_α 2941 *85*	EC+β+(100%)	493, 370, 124, 68, 73
^{169}Ta	4.9 m *4*	(5/2-)	Q_{EC} (4440 *220*), Q_α (3460 *220*)	EC+β+(100%)	511, 29, 192, 154, 595
^{169}W	76 s *6*	(5/2-)	Q_{EC} (5400 *400*), Q_α (4300 *200*)	EC+β+(100%)	
^{169}Re(0+y)			Q_{EC} (6600 *400*), Q_α (5039 *86*)		
^{169}Re(0+x) 12.9 s *11*				α(~0.2%)	
^{169}Os	3.4 s *2*		Q_{EC} (7680 *220*), Q_α 5717 *4*	EC+β+(89% *1*), α(11% *1*)	
^{169}Ir	0.4 s *1*		Q_{EC} 8680 *120*, Q_α 6276 *50*	α(~100%), EC+β+, p	
^{169}Pt	2.5 ms$^{+25}_{-10}$		Q_{EC} (9300 *300*), Q_α 6840 *50*	α	
^{170}Tb			Q_{β^-}(7100 *800*)		
^{170}Dy		0+	Q_{β^-}(2800 *400*)		
^{170}Ho	2.76 m *5*	(6+)	Q_{β^-}3870 *50*	β–(100%)	258, 932, 182, 890, 941
^{170}Ho(120) 43 s *2*		(1+)		β–(100%)	812, 1894, 79, 1973, 1188
^{170}Er	14.9% *2*	0+	Δ –60118 *3*		
^{170}Tm	128.6 d *3*	1-	Q_{EC} 314.4 *18*, Q_{β^-}968.0 *8*	EC(0.131% *10*), β–(99.869% *10*)	79
^{170}Yb	3.05% *6*	0+	Δ –60772 *3*		
^{170}Lu	2.012 d *20*	0+	Q_{EC} 3459 *19*, Q_α 2157 *22*	EC+β+(100%)	84, 1280, 2042, 985, 2126
^{170}Lu(92.89) 0.67 s *10*		(4)-		IT(100%)	45, 48
^{170}Hf	16.01 h *13*	0+	Q_{EC} (1100 *200*), Q_α (2950 *200*)	EC(100%)	165, 621, 120, 573, 502
^{170}Ta	6.76 m *6*	(3+)	Q_{EC} (6000 *300*), Q_α (3470 *250*)	EC+β+(100%)	101, 221, 860, 987.0, 987.0
^{170}W	2.42 m *4*	0+	Q_{EC} (3000 *500*), Q_α (4100 *600*)	EC+β+(100%)	316, 144, 118, 61, 60
^{170}Re	9.2 s *2*	(5+)	Q_{EC} (8300 *600*), Q_α (4700 *500*)	EC+β+(100%)	306, 157, 413, 488, 740
^{170}Os	7.3 s *2*	0+	Q_{EC} (5000 *400*), Q_α 5539 *4*	EC+β+(88% *1*), α(12% *1*)	216, 162
^{170}Ir	1.05 s *15*		Q_{EC} (10680 *150*), Q_α 6173 *50*	EC+β+(25% *syst*), α(75% *syst*)	
^{170}Pt	6 ms$^{+5}_{-2}$	0+	Q_{EC} 6790 *110*, Q_α 6704 *6*	α(100%)	
^{171}Tb			Q_{β^-}(6400 *900*)		
^{171}Dy			Q_{β^-}(4700 *800*)		
^{171}Ho	53 s *2*	(7/2-)	Q_{β^-}3200 *600*	β–(100%)	903, 199, 279, 532, 907
^{171}Er	7.516 h *2*	5/2-	Q_{β^-}1490.5 *13*	β–(100%)	308, 296, 112, 124, 117
^{171}Tm	1.92 y *1*	1/2+	Q_{β^-}96.4 *10*	β–(100%)	67
^{171}Yb	14.3% *2*	1/2-	Δ –59315 *3*		
^{171}Yb(95.272) 5.25 ms *24*		7/2+		IT(100%)	19, 76, 67, 9
^{171}Lu	8.24 d *3*	7/2+	Q_{EC} 1478.8 *19*, Q_α 2289.4 *24*	EC+β+(100%)	740, 19, 667, 76, 781
^{171}Lu(71.2) 79 s *2*		1/2-		IT(100%)	71
^{171}Hf	12.1 h *4*	(7/2+)	Q_{EC} (2400 *200*), Q_α (2740 *200*)	EC+β+(100%)	122, 662, 347, 1072, 296
^{171}Ta	23.3 m *3*	(5/2-)	Q_{EC} (3700 *300*), Q_α (3310 *230*)	EC+β+(100%)	50, 506, 502, 166, 175
^{171}W	2.38 m *4*	(5/2-)	Q_{EC} (4700 *300*), Q_α (4000 *300*)	EC+β+(100%)	184, 295, 479, 52, 131
^{171}Re	15.2 s *4*	(9/2-)	Q_{EC} 5670 *200*, Q_α (4600 *600*)	EC+β+(100%)	568, 102, 1066, 435, 133
^{171}Os	8.0 s *7*	(5/2-)	Q_{EC} (7000 *500*), Q_α 5370 *5*	EC+β+(98.3% *3*), α(1.7% *3*)	
^{171}Ir	1.5 s *1*		Q_{EC} (8100 *300*), Q_α 6159 *3*	α(~100%), EC+β+, p	
^{171}Pt	25 ms *9*		Q_{EC} (8800 *300*), Q_α 6607 *50*	α(~99%), EC+β+(~1%)	
^{171}Au			Q_{EC} (9800 *400*), Q_α (7110 *220*)		
^{172}Dy		0+	Q_{β^-}(4000 *700*)		
^{172}Ho	25 s *3*		Q_{β^-}(5100 *400*)	β–(100%)	134, 178, 757, 291, 229
^{172}Er	49.3 h *3*	0+	Q_{β^-}891 *5*	β–(100%)	610, 407, 68, 446, 60
^{172}Tm	63.6 h *2*	2-	Q_{β^-}1880 *6*	β–(100%)	79, 1094, 1387, 1530, 1466
^{172}Yb	21.9% *3*	0+	Δ –59264 *3*		
^{172}Lu	6.70 d *3*	4-	Q_{EC} 2519.3 *24*, Q_α 2150 *3*	EC+β+(100%)	1094, 901, 182, 810, 912
^{172}Lu(41.86) 3.7 m *5*		1-		IT(100%)	42
^{172}Hf	1.87 y *3*	0+	Q_{EC} 350 *50*, Q_α 2757 *50*	EC(100%)	24, 126, 67, 82, 114
^{172}Ta	36.8 m *3*	(3+)	Q_{EC} 4920 *180*, Q_α 3200 *200*	EC+β+(100%)	214, 95, 1109, 1330, 1086
^{172}W	6.6 m *9*	0+	Q_{EC} (2500 *200*), Q_α (3900 *300*)	EC+β+(100%)	39, 423, 90, 221, 114
^{172}Re(0+x)15 s *3*		(5)	Q_{EC} (7300 *400*), Q_α (4560 *200*)	EC+β+(100%)	
^{172}Re(0+y) 55 s *5*		(2)		EC+β+(100%)	
^{172}Os	19.2 s *9*	0+	Q_{EC} (4500 *400*), Q_α 5227 *10*	EC+β+(99.8%), α(0.2%)	63, 177, 240, 1120, 292
^{172}Ir	4.4 s *3*	(3+)	Q_{EC} (9800 *400*), Q_α 5991 *10*	α(~2%), EC+β+(98%)	123, 136, 90
^{172}Ir(139) 2.0 s *1*		(7+)		α(23% *3*), EC+β+(77% *3*)	378, 582, 471, 448, 228
^{172}Pt	0.104 s *7*	0+	Q_{EC} (6300 *400*), Q_α 6465 *4*	α(94%$^{+6}_{-32}$), EC+β+(6%$^{+39}_{-6}$)	
^{172}Au	4 ms *1*		Q_{EC} (11900 *300*), Q_α 7024 *50*	α(<100%), p(<2%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{173}Dy			Q_{β^-}(5700 *800*)		
^{173}Ho			Q_{β^-}(4600 *400*)		
^{173}Er	1.4 m *1*	(7/2-)	Q_{β^-}(2610 *200*)	β–(100%)	895, 199, 193, 122, 116
^{173}Tm	8.24 h *8*	(1/2+)	Q_{β^-}1298 *5*	β–(100%)	399, 461, 63
^{173}Yb	16.12% *21*	5/2-	Δ–57560 *3*		
^{173}Lu	1.37 y *1*	7/2+	Q_{EC} 670.8 *17*	EC(100%)	272, 79, 101, 171, 636
^{173}Hf	23.6 h *1*	1/2-	Q_{EC} (1610 *100*), Q_{α} (2660 *100*)	EC+β+(100%)	124, 297, 140, 311, 162
^{173}Ta	3.14 h *13*	5/2-	Q_{EC} (2690 *200*), Q_{α} (3060 *230*)	EC+β+(100%)	172, 70, 90, 160, 1208
^{173}W	7.6 m *2*	5/2-	Q_{EC} 4000 *300*, Q_{α} (3800 *400*)	EC+β+(100%)	458, 130, 175, 623, 36
^{173}Re	1.98 m *26*	(5/2-)	Q_{EC} (4900 *600*), Q_{α} (4200 *500*)	EC+β+(100%)	182, 191, 374
^{173}Os	16 s *5*	(5/2-)	Q_{EC} (6300 *500*), Q_{α} 5057 *50*	EC+β+(99.979% *9*), α(0.021% *9*)	177, 187, 285, 276
^{173}Ir(0+y)	9.0 s *8*	(3/2+,5/2+)	Q_{EC} (7400 *400*), Q_{α} (5840 *100*)	EC+β+(>93%), α(<7%)	
^{173}Ir(0+x)	2.20 s *5*	(11/2-)		EC+β+(88% *1*), α(12% *1*)	
^{173}Pt	342 ms *18*		Q_{EC} (8190 *250*), Q_{α} 6353 *50*	EC+β+(16% *6*), α(84% *6*)	
^{173}Au	59 ms$^{+45}_{-18}$		Q_{EC} 9220 *140*, Q_{α} 6897 *50*	α(<100%)	
^{174}Ho			Q_{β^-}(6300 *600*)		
^{174}Er	3.3 m *2*	0+	Q_{β^-}(2000 *300*)	β–(100%)	100, 708, 767, 152, 773
^{174}Tm	5.4 m *1*	(4)-	Q_{β^-}3080 *45*	β–(100%)	367, 992, 273, 177, 494
^{174}Yb	31.8% *4*	0+	Δ–56953 *3*		
^{174}Lu	3.31 y *5*	(1)-	Q_{EC} 1374.3 *16*, Q_{β^-}273.3 *22*	EC+β+(100%)	76, 1242, 1318, 1065, 177
^{174}Lu(170.83)	142 d *2*	(6)-		IT(99.38% *2*), EC(0.62% *2*)	273, 992, 177, 76, 1265
^{174}Hf	2.0×10^{15} y *4*	0+	Δ–55852 *3*, Q_{α} 2494.8 *25*	α(100%)	
	0.162% *3*				
^{174}Ta	1.05 h *3*	3(+)	Q_{EC} 3845 *80*, Q_{α} 2881 *82*	EC+β+(100%)	207, 91, 1206, 1228, 765
^{174}W	31 m *1*	0+	Q_{EC} (1900 *300*), Q_{α} (3600 *400*)	EC+β+(100%)	35, 429, 329, 379, 193
^{174}Re	2.40 m *4*		Q_{EC} (6500 *500*), Q_{α} (4100 *500*)	EC+β+(100%)	243, 113, 1003, 350, 739
^{174}Os	44 s *4*	0+	Q_{EC} (3700 *400*), Q_{α} 4872 *10*	EC+β+(99.980%$^{+4}_{-10}$), α(0.020%$^{+10}_{-4}$)	118, 325, 302, 138, 372
^{174}Ir	9 s *2*	(3+)	Q_{EC} (9000 *600*), Q_{α} 5624 *10*	EC+β+(99.53% *27*), α(0.47% *27*)	194, 225, 31
^{174}Ir(193)	4.9 s *3*	(7+)		EC+β+(97.5% *3*), α(2.5% *3*)	210, 190, 160, 20, 122
^{174}Pt	0.90 s *1*	0+	Q_{EC} (5600 *400*), Q_{α} 6184 *5*	α(83% *5*), EC+β+(17% *5*)	
^{174}Au	120 ms *20*		Q_{EC} (11280 *150*), Q_{α} 6782 *10*	α	
^{175}Ho			Q_{β^-}(5700 *700*)		
^{175}Er	1.2 m *3*	(9/2+)	Q_{β^-}(3800 *400*)	β–(100%)	1168, 234, 121, 281, 227
^{175}Tm	15.2 m *5*	1/2+	Q_{β^-}2385 *50*	β–(100%)	515, 941, 364, 982, 894
^{175}Yb	4.185 d *1*	7/2-	Q_{β^-}470.0 *13*	β–(100%)	396, 283, 114, 145, 138
^{175}Yb(514.869)	68.2 ms *3*	1/2-		IT(100%)	515
^{175}Lu	97.41% *2*	7/2+	Δ–55174 *3*		
^{175}Hf	70 d *2*	5/2-	Q_{EC} 684.7 *20*, Q_{α} 2400.9 *24*	EC(100%)	343, 89, 433, 230, 114
^{175}Ta	10.5 h *2*	7/2+	Q_{EC} (2000 *100*), Q_{α} (2920 *100*)	EC+β+(100%)	207, 349, 267, 82, 126
^{175}W	35.2 m *6*	(1/2-)	Q_{EC} (2910 *220*), Q_{α} (3400 *300*)	EC+β+(100%)	270, 167, 149, 121, 51
^{175}Re	5.89 m *5*	(5/2-)	Q_{EC} (4300 *500*), Q_{α} (4000 *500*)	EC+β+(100%)	185, 281
^{175}Os	1.4 m *1*	(5/2-)	Q_{EC} (5300 *500*), Q_{α} (4700 *400*)	EC+β+(100%)	125, 181, 248, 170, 410
^{175}Ir	9 s *2*	(5/2-)	Q_{EC} (6700 *500*), Q_{α} 5709 *4*	EC+β+(99.15% *28*), α(0.85% *28*)	106, 399
^{175}Pt	2.52 s *8*		Q_{EC} (7400 *500*), Q_{α} 6178 *3*	α(64% *5*), EC+β+(36% *5*)	208, 131, 76
^{175}Au	200 ms *22*		Q_{EC} (8600 *400*), Q_{α} (6680 *200*)	α(94%$^{+6}_{-25}$), EC+β+(6%$^{+25}_{-6}$)	
^{175}Hg	20 ms$^{+40}_{-13}$		Q_{EC} (9200 *400*), Q_{α} 7039 *50*	α(100%)	
^{176}Er		0+	Q_{β^-}(3100 *400*)		
^{176}Tm	1.9 m *1*	(4+)	Q_{β^-}4120 *100*	β–(100%)	190, 1069, 382, 82, 240
^{176}Yb	12.7% *2*	0+	Δ–53497 *3*		
^{176}Yb(1050.0)	11.4 s *3*	(8-)		IT(>90%), β–(<10%)	293, 389, 190, 96, 82
^{176}Lu	3.78×10^{10} y *2*	7-	Δ–53391 *3*, Q_{EC} 106.2 *17*	β–(100%)	307, 202, 88, 401
	2.59% *2*		Q_{β^-}1192.8 *9*		
^{176}Lu(123.0)	3.635 h *3*	1-		β–(99.905% *16*), EC(0.095% *16*)	82
^{176}Hf	5.206% *5*	0+	Δ–54584 *3*, Q_{α} 2255.0 *17*		
^{176}Ta	8.09 h *5*	(1)-	Q_{EC} 3110 *100*, Q_{α} 2850 *100*	EC+β+(100%)	1159, 88, 1225, 202, 711
^{176}Ta(103.0)	1.1 ms *1*	(+)		IT(100%)	34, 46, 24
^{176}Ta(2774+x)	1.4 ms	(20-)			
^{176}W	2.5 h *1*	0+	Q_{EC} (790 *220*), Q_{α} (3290 *200*)	EC(100%)	100, 95, 61, 84, 51
^{176}Re	5.3 m *3*	3(+)	Q_{EC} (5600 *300*), Q_{α} (3900 *300*)	EC+β+(100%)	240, 109, 849, 820, 768
^{176}Os	3.6 m *5*	0+	Q_{EC} (3100 *300*), Q_{α} (4600 *300*)	EC+β+(100%)	1291, 776, 1209, 857, 82
^{176}Ir	8 s *1*		Q_{EC} (8000 *400*), Q_{α} 5237 *50*	EC+β+(97.9% *4*), α(2.1% *4*)	
^{176}Pt	6.33 s *15*	0+	Q_{EC} (5100 *400*), Q_{α} 5886.0 *22*	EC+β+(62% *3*), α(38% *3*)	228
^{176}Au	1.08 s *17*		Q_{EC} (10500 *400*), Q_{α} 6542 *10*	α, EC+β+	168
^{176}Hg	34 ms$^{+18}_{-9}$	0+	Q_{EC} (6700 *400*), Q_{α} 6925 *10*	α(~100%)	
^{177}Tm	85 s$^{+10}_{-15}$	(1/2+)	Q_{β^-}(3500 *300*)	β–(100%)	105, 518, 45, 589, 622
^{177}Yb	1.911 h *3*	(9/2+)	Q_{β^-}1399.2 *20*	β–(100%)	150, 1080, 1241, 122, 139
^{177}Yb(331.5)	6.41 s *3*	(1/2-)		IT(100%)	105, 227
^{177}Lu	6.734 d *12*	7/2+	Q_{β^-}498.3 *8*	β–(100%)	208, 113, 321, 250, 72
^{177}Lu(970.1749)	160.4 d *3*	23/2-		β–(78.3% *6*), IT(21.7% *6*)	414, 319, 122, 172, 147
^{177}Hf	18.606% *4*	7/2-	Δ–52890.2 *25*, Q_{α} 2244.9 *16*		
^{177}Hf(1315.4502)	1.08 s *6*	23/2+		IT(100%)	208, 228, 379, 419, 113
^{177}Hf(2740.0)	51.4 m *5*	37/2-		IT(100%)	277, 295, 327, 312, 214

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{177}Ta	56.56 h *6*	7/2+	Q_{EC} 1166 *3*, Q_{α} 2740 *3*	EC+β+(100%)	113, 208, 1058, 746, 425
^{177}W	135 m *3*	(1/2-)	Q_{EC} (2000 *300*), Q_{α} (3100 *300*)	EC+β+(100%)	116, 427, 1036, 115, 186
^{177}Re	14 m *1*	(5/2-)	Q_{EC} (3400 *400*), Q_{α} (3800 *300*)	EC+β+(100%)	197, 80, 84, 95, 1965
^{177}Os	2.8 m *3*	(1/2-)	Q_{EC} (4400 *300*), Q_{α} (4300 *500*)	EC+β+(100%)	85, 125, 196, 1269, 300
^{177}Ir	30 s *2*	(5/2-)	Q_{EC} (5700 *500*), Q_{α} 5127 *50*	EC+β+(99.94% *1*), α(0.06% *1*)	184, 148, 76, 88, 91
^{177}Pt	11 s *1*	(5/2-)	Q_{EC} (6800 *500*), Q_{α} 5644 *3*	EC+β+(94.4% *4*), α(5.6% *4*)	92
^{177}Au	1.18 s *7*		Q_{EC} (8200 *400*), Q_{α} 6431 *7*	α(<40%)	
^{177}Hg	0.130 s *5*		Q_{EC} (8500 *300*), Q_{α} 6738 *50*	α(85%), EC+β+(15%)	
^{177}Tl			Q_{EC} (9820 *250*), Q_{α} (7340 *200*)		
^{178}Tm			Q_{β^-}(5600 *400*)		
^{178}Yb	74 m *3*	0+	Q_{β^-} 645 *10*	β–(100%)	391, 348, 42
^{178}Lu	28.4 m *2*	1(+)	Q_{β^-} 2099.2 *21*	β–(100%)	93, 1341, 1310, 1269, 1403
^{178}Lu(120) 23.1 m *3*		(9-)		β–(100%)	426, 326, 213, 89, 93
^{178}Hf	27.297% *4*	0+	Δ –52445.2 *25*, Q_{α} 2083.2 *16*		
^{178}Hf(1147.423) 4.0 s *2*		8-		IT(100%)	426, 326, 213, 89, 93
^{178}Hf(2446.05) 31 y *1*		16+		IT(100%)	426, 326, 574, 213, 495
^{178}Ta(y+0)9.31 m *3*		1+	Q_{EC} 1910 *100*, Q_{α} 2620 *100*	EC+β+(100%)	
^{178}Ta(x+0) 2.36 h *8*		(7)-		EC+β+(100%)	
^{178}Ta(x+1470.6) 60 ms *5*		(15-)		IT(100%)	
^{178}W	21.6 d *3*	0+	Q_{EC} 91.3 *20*, Q_{α} 2990 *100*	EC(100%)	
^{178}Re	13.2 m *2*	(3+)	Q_{EC} 4660 *180*, Q_{α} 3800 *220*	EC+β+(100%)	237, 106, 939, 778, 977
^{178}Os	5.0 m *4*	0+	Q_{EC} 2300 *300*, Q_{α} (4300 *400*)	EC+β+(100%)	969, 1331, 595, 685, 533
^{178}Ir	12 s *2*		Q_{EC} (7200 *300*), Q_{α} (5000 *200*)	EC+β+(100%)	266, 132, 363, 900, 639
^{178}Pt	21.1 s *6*	0+	Q_{EC} (4300 *300*), Q_{α} 5573 *3*	EC+β+(92.3% *3*), α(7.7% *3*)	101, 92, 90, 85, 37
^{178}Au	2.6 s *5*		Q_{EC} (9600 *600*), Q_{α} 6118 *50*	EC+β+(<60%), α(>40%)	
^{178}Hg	0.254 s *19*	0+	Q_{EC} (6100 *400*), Q_{α} 6578 *6*	EC+β+(~30%), α(~70%)	
^{178}Tl			Q_{EC} (11880 *210*), Q_{α} (7180 *150*)		
^{179}Tm			Q_{β^-}(4800 *600*)		
^{179}Yb	8.0 m *4*	(1/2-)	Q_{β^-}(2700 *300*)	β–(100%)	592, 612, 381, 654, 325
^{179}Lu	4.59 h *6*	7/2(+)	Q_{β^-} 1406 *5*	β–(100%)	214, 215, 123.4, 338, 122.8
^{179}Lu(592.4) 3.1 ms *9*		1/2(+)		IT(100%)	592
^{179}Hf	13.629% *6*	9/2+	Δ –50472.9 *25*		
^{179}Hf(375.0367) 18.67 s *4*		1/2-		IT(100%)	214, 161, 375
^{179}Hf(1105.84) 25.05 d *25*		25/2-		IT(100%)	453, 362, 123, 146, 410
^{179}Ta	1.82 y *3*	7/2+	Q_{EC} 111 *6*, Q_{α} 2387 *6*	EC(100%)	
^{179}Ta(1318.0) 9.0 ms *2*		(25/2+)			
^{179}Ta(2640.9) 52 ms *3*		(37/2+)			
^{179}W	37.05 m *16*	(7/2)-	Q_{EC} 1060 *16*, Q_{α} 2762 *16*	EC+β+(100%)	31, 134
^{179}W (221.926) 6.40 m *7*		(1/2)-		IT(99.72% *3*), EC+β+(0.28% *3*)	239, 282, 223, 214, 289
^{179}Re	19.5 m *1*	(5/2)+	Q_{EC} 2710 *50*, Q_{α} (3470 *120*)	EC+β+(100%)	430, 290, 1680, 415, 477
^{179}Os	6.5 m *3*	(1/2-)	Q_{EC} (3700 *240*), Q_{α} (4300 *300*)	EC+β+(100%)	65, 219, 32, 593.8, 593.8
^{179}Ir	79 s *1*	(5/2)-	Q_{EC} (4800 *500*), Q_{α} (4800 *200*)	EC+β+(100%)	98, 86, 45, 100, 220
^{179}Pt	21.2 s *4*	1/2-	Q_{EC} (5900 *500*), Q_{α} 5395 *7*	EC+β+(99.76% *3*), α(0.24% *3*)	172, 193, 100, 1565, 915
^{179}Au	7.1 s *3*		Q_{EC} (7400 *500*), Q_{α} 6082 *21*	EC+β+(78.0% *9*), α(22.0% *9*)	
^{179}Hg	1.09 s *4*		Q_{EC} (7800 *500*), Q_{α} 6431 *5*	EC+β+(~47%), α(~53%), ECp(~0.15%)	
^{179}Tl	0.16 s^{+9}_{-4}		Q_{EC} (9000 *300*), Q_{α} (6810 *210*)	α(~100%)	
^{179}Tl(0+x) 1.4 ms *5*		(9/2-)		α(~100%)	
^{180}Yb	2.4 m *5*	0+	Q_{β^-}(2300 *400*)	β–(100%)	173, 375, 420, 339, 548
^{180}Lu	5.7 m *1*	(3)+	Q_{β^-} 3103 *71*	β–(100%)	408, 1200, 1106, 215, 1198
^{180}Hf	35.100% *7*	0+	Δ –49789.5 *25*		
^{180}Hf(1141.48) 5.5 h *1*		8-		IT(99.7% *1*), β–(0.3% *1*)	332, 443, 215, 58, 93
^{180}Ta	8.152 h *6*	1+	Δ –48935 *3*, Q_{EC} 854 *3*	EC(86% *3*), β–(14% *3*)	93
	0.012% *2*		Q_{β^-} 708 *4*, Q_{α} 2031 *3*		
^{180}Ta(75.3)>1.2×10^{15} y		9-			
^{180}W	0.13% *4*	0+	Δ –49643 *5*, Q_{α} 2516 *5*		
^{180}W (1529.04) 5.47 ms *9*		8-		IT(100%)	391, 450, 351, 234, 104
^{180}Re	2.44 m *6*	(1)-	Q_{EC} 3802 *33*, Q_{α} 3210 *110*	EC+β+(100%)	903, 104, 825, 749, 234
^{180}Os	21.5 m *4*	0+	Q_{EC} (1460 *190*), Q_{α} (3900 *300*)	EC+β+(100%)	20, 717, 667, 48, 450
^{180}Ir	1.5 m *1*		Q_{EC} (6429 *61*), Q_{α} (4700 *300*)	EC+β+(100%)	276, 132, 699, 870, 1065
^{180}Pt	52 s *3*	0+	Q_{EC} (3691 *60*), Q_{α} 5275 *9*	EC+β+(100%), α(~0.3%)	
^{180}Au	8.1 s *3*		Q_{EC} (8600 *400*), Q_{α} 5851 *21*	EC+β+(<98.2%), α(>1.8%)	153, 524, 258, 861, 325
^{180}Hg	2.8 s *2*	0+	Q_{EC} (5500 *400*), Q_{α} 6258 *4*	EC+β+(52% *4*), α(48% *4*)	480, 451, 405, 381, 301
^{180}Tl	0.70 s^{+12}_{-9}		Q_{EC} (11100 *500*), Q_{α} (6820 *200*)	EC+β+, ECSF)	
^{181}Yb			Q_{β^-}(3900 *500*)		
^{181}Lu	3.5 m *3*	(7/2+)	Q_{β^-}(2700 *300*)	β–(100%)	653, 206, 575, 806, 858
^{181}Hf	42.39 d *6*	1/2-	Q_{β^-} 1027 *3*	β–(100%)	482, 133, 346, 136, 137
^{181}Ta	99.988% *2*	7/2+	Δ –48441 *3*		
^{181}W	121.2 d *2*	9/2+	Q_{EC} 188 *5*, Q_{α} 2212 *5*	EC(100%)	6, 136, 152
^{181}Re	19.9 h *7*	5/2+	Q_{EC} 1739 *15*, Q_{α} 2785 *15*	EC+β+(100%)	366, 361, 639, 953, 1000

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{181}Os	105 m *3*	1/2-	Q_{EC} 2990 *200*, Q_α (3800 *400*)	EC+β+(100%)	239, 827, 118, 832, 243
^{181}Os(49.0)	2.7 m *1*	(7/2)-		EC+β+(100%)	145, 118, 1119, 1468, 238
^{181}Ir	4.90 m *15*	(5/2)-	Q_{EC} 4068 *64*, Q_α (4400 *300*)	EC+β+(100%)	108, 1640, 319, 232, 1529
^{181}Pt	51 s *5*	1/2-	Q_{EC} (5200 *300*), Q_α 5150 *50*	EC+β+(100%), α(~0.06%)	289, 112, 230, 243, 906
^{181}Au	11.4 s *5*	5/2-	Q_{EC} (6300 *500*), Q_α 5752 *3*	EC+β+(98.7% *2*), α(1.3% *2*)	148
^{181}Hg	3.6 s *3*	1/2(-)	Q_{EC} (7300 *500*), Q_α 6287 *5*	EC+β+(64% *4*), α(36% *4*), ECp(0.014% *4*), ECα(9×10^{-6}% *3*)	1987, 223, 185, 148, 43
^{181}Tl			Q_{EC} (8500 *500*), Q_α (6600 *300*)		
^{181}Pb			Q_{EC} (9100 *400*), Q_α (7240 *120*)		
^{181}Pb(0+x)	50 ms$^{+40}_{-30}$	(13/2+)		α	
^{182}Lu	2.0 m *2*	(0,1,2)	Q_{β^-}(4300 *300*)	β–(100%)	818, 721, 808, 98, 224
^{182}Hf	9×10^6 y *2*	0+	Q_{β^-}373 *7*	β–(100%)	270, 156, 114, 173, 98
^{182}Hf(1172.88)	61.5 m *15*	8-		β–(58% *3*), IT(42% *3*)	344, 224, 507, 456, 51
^{182}Ta	114.43 d *3*	3-	Q_{β^-}1813.5 *18*	β–(100%)	68, 1121, 1221, 1189, 100
^{182}Ta(16.263)	283 ms *3*	5+		IT(100%)	16
^{182}Ta(519.572)	15.84 m *10*	10-		IT(100%)	172, 147, 185, 318, 356
^{182}W	26.3% *2*	0+	Δ –48246 *3*		
^{182}Re	64.0 h *5*	7+	Q_{EC} 2800 *100*, Q_α 2660 *140*	EC+β+(100%)	229, 68, 1121, 1221, 100
^{182}Re(0+x)	12.7 h *2*	2+		EC+β+(100%)	
^{182}Os	22.10 h *25*	0+	Q_{EC} 910 *100*, Q_α 3480 *100*	EC(100%)	510, 180, 263, 56, 131
^{182}Ir	15 m *1*	(5+)	Q_{EC} 5530 *140*, Q_α 4350 *250*	EC+β+(100%)	273, 127, 236, 912, 790
^{182}Pt	2.2 m *1*	0+	Q_{EC} 2920 *140*, Q_α 4952 *5*	EC+β+(99.962% *2*), α(0.038% *2*)	136, 146, 210, 186
^{182}Au	15.6 s *4*		Q_{EC} (7800 *300*), Q_α 5527 *5*	EC+β+(99.87% *5*), α(0.13% *5*)	55
^{182}Hg	10.83 s *6*	0+	Q_{EC} (4800 *300*), Q_α 5997 *5*	EC+β+(84.8% *8*), α(15.2% *8*)	251, 170, 422
^{182}Tl	3.1 s *10*	(7+)	Q_{EC} (10100 *600*), Q_α 6550 *10*	EC+β+(>96%), α(<4%)	352, 261, 333, 414
^{182}Pb	55 ms$^{+40}_{-35}$	0+	Q_{EC} (6600 *400*), Q_α 7076 *9*	α	
^{183}Lu	58 s *4*	(7/2+)	Q_{β^-}(3800 *300*)	β–(100%)	1125, 1057, 168, 248, 69
^{183}Hf	1.067 h *17*	(3/2-)	Q_{β^-}2010 *30*	β–(100%)	784, 73, 459, 398, 1470
^{183}Ta	5.1 d *1*	7/2+	Q_{β^-}1070.0 *18*	β–(100%)	246, 354, 108, 161, 244
^{183}W	>1.1×10^{17} y 14.3% *1*	1/2-	Δ –46366 *3*		
^{183}W (309.493)	5.2 s *3*	11/2+		IT(100%)	108, 99, 53, 46, 161
^{183}Re	70.0 d *11*	5/2+	Q_{EC} 556 *8*, Q_α 2128 *10*	EC(100%)	162, 46, 292, 209, 110
^{183}Re(1907.6)	1.04 ms *4*	(25/2)+		IT(100%)	194, 587, 257, 175, 204
^{183}Os	13.0 h *5*	9/2+	Q_{EC} (2130 *100*), Q_α (3200 *100*)	EC+β+(100%)	382, 114, 168, 851, 236
^{183}Os(170.71)	9.9 h *3*	1/2-		EC+β+(85% *2*), IT(15% *2*)	1102, 1108, 1035, 484, 879
^{183}Ir	58 m *6*	5/2-	Q_{EC} 3450 *100*, Q_α (3940 *150*)	EC+β+(100%)	393, 229, 88, 282, 732
^{183}Pt	6.5 m *10*	1/2-	Q_{EC} (4600 *300*), Q_α 4819 *50*	EC+β+(~100%), α(~0.0013%)	
^{183}Pt(34.50)	43 s *5*	(7/2)-		EC+β+(100%), α	629, 317, 329, 313, 646
^{183}Au	42.0 s *12*	(5/2)-	Q_{EC} (5500 *500*), Q_α 5466 *3*	EC+β+(99.70% *5*), α(0.30% *5*)	161, 214, 313, 180, 1532
^{183}Hg	9.4 s *7*	1/2-	Q_{EC} (6500 *500*), Q_α 6039 *4*	EC+β+(88.3% *20*), α(11.7% *20*), ECp(0.00056% *8*)	1788, 305, 173, 160, 61
^{183}Tl		(1/2+)	Q_{EC} (7600 *500*), Q_α (6220 *190*)		
^{183}Tl(550)	60 ms *15*	(9/2-)		α(<0.010%)	
^{183}Pb(0+x)	300 ms *80*	(1/2-)	Q_{EC} (8600 *500*), Q_α 7027 *50*	α(~94%), EC+β+(~6%)	
^{184}Lu(0+x)	~20 s		Q_{β^-}(5300 *400*)	β–(100%)	
^{184}Lu(0+y)				β–(100%)	
^{184}Hf	4.12 h *5*	0+	Q_{β^-}1340 *30*	β–(100%)	139, 345, 181, 41, 44
^{184}Ta	8.7 h *1*	(5-)	Q_{β^-}2866 *26*	β–(100%)	414, 253, 921, 111, 318
^{184}W	>3×10^{17} y 30.67% *15*	0+	Δ –45706 *3*		
^{184}Re	38.0 d *5*	3(-)	Q_{EC} 1483 *4*, Q_{β^-}31 *4*, Q_α 2287 *5*	EC+β+(100%)	903, 792, 111, 895, 253
^{184}Re(188.01)	169 d *8*	8(+)		IT(75.4% *11*), EC(24.6% *11*)	253, 217, 921, 161, 111
^{184}Os	>5.6×10^{13} y 0.02% *1*	0+	Δ –44255 *3*, Q_α 2964 *4*		
^{184}Ir	3.09 h *3*	5-	Q_{EC} 4600 *300*, Q_α 3700 *300*	EC+β+(100%)	264, 120, 390, 961, 841
^{184}Pt	17.3 m *2*	0+	Q_{EC} (2300 *300*), Q_α 4602 *9*	EC+β+(100%), α(~0.001%)	155, 192, 548, 71, 731
^{184}Pt(1839.4)	1.01 ms *5*	8-		IT(100%)	273, 362, 609, 163, 440
^{184}Pt(1843.8)	1.1 ms	8-			
^{184}Au	53.0 s *14*	3+	Q_{EC} (7060 *60*), Q_α 5232 *5*	EC+β+(99.978%), α(0.022%)	163, 273, 362, 777, 486
^{184}Hg	30.6 s *3*	0+	Q_{EC} (4120 *60*), Q_α 5662 *5*	EC+β+(98.89% *6*), α(1.11% *6*)	236, 156, 295, 392, 259
^{184}Tl(0+x)	11 s *1*		Q_{EC} (9200 *400*), Q_α 6298 *50*	EC+β+(97.9% *7*), α(2.1% *7*)	
^{184}Pb	0.55 s *6*	0+	Q_{EC} (6000 *400*), Q_α 6775 *5*	α	
^{185}Hf	3.5 m *6*		Q_{β^-}(3000 *300*)	β–(100%)	165
^{185}Ta	49.4 m *15*	(7/2+)	Q_{β^-}1992 *14*	β–(100%)	178, 174, 66, 244, 108
^{185}W	75.1 d *3*	3/2-	Q_{β^-}433.0 *9*	β–(100%)	125
^{185}W (197.43)	1.67 m *3*	11/2+		IT(100%)	66, 132, 174, 188, 164
^{185}Re	37.40% *2*	5/2+	Δ –43821 *3*, Q_α 2194.7 *20*		
^{185}Os	93.6 d *5*	1/2-	Q_{EC} 1012.8 *5*, Q_α 3020 *5*	EC(100%)	646, 875, 881, 717, 592

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{185}Ir	14.4 h *1*	5/2-	Q_{EC} (2370 *200*), Q_α (3650 *200*)	EC+β+(100%)	254, 1829, 60, 97, 1668
^{185}Pt	70.9 m *24*	9/2+	Q_{EC} (3900 *300*), Q_α 4542 *50*	EC+β+(100%), α(0.0050% *20*)	
^{185}Pt(103.4)	33.0 m *8*	1/2-		EC+β+(99% *1*), IT(<2%)	230, 135, 197, 255, 465
^{185}Au	4.25 m *6*	5/2-	Q_{EC} 4707 *40*, Q_α 5181 *4*	EC+β+(99.74% *6*), α(0.26% *6*)	311, 243, 78, 332, 309
^{185}Au(0+x)	6.8 m *3*			EC+β+(<100%), IT	
^{185}Hg	49.1 s *10*	1/2-	Q_{EC} (5800 *300*), Q_α 5778 *11*	EC+β+(94% *1*), α(6% *1*)	94, 15, 79
^{185}Hg(99.3)	21.6 s *15*	13/2+		IT(54% *10*), EC+β+(46% *10*), α(~0.03%)	106, 159, 119, 61
^{185}Tl	19.5 s *5*	(1/2+)	Q_{EC} (6600 *500*), Q_α (6100 *200*)	EC+β+	
^{185}Tl(454)	1.83 s *12*	(9/2-)		IT, α	169, 284
^{185}Pb	4.1 s *3*		Q_{EC} (7900 *500*), Q_α 6680 *50*	α(<100%)	
^{185}Bi(0+x)	44 μs *15*	(1/2+)	Q_{EC} (9400 *400*), Q_α (7600 *400*)	p(~100%)	
^{186}Hf		0+	Q_{β^-}(2200 *300*)		
^{186}Ta	10.5 m *5*	2,3	Q_{β^-} 3901 *60*	β–(100%)	198, 215, 511, 738, 615
^{186}W	28.6% *2*	0+	Δ –42511 *3*		
^{186}Re	90.64 h *9*	1-	Q_{EC} 581.6 *17*, Q_{β^-} 1069.5 *9* Q_α 2078.0 *21*	β–(93.1% *2*), EC(6.9% *2*)	123
^{186}Re(149)	2.0×10^5 y *5*	(8+)		IT(100%), β–(<10%)	59, 40, 99, 87, 146
^{186}Os	2.0×10^{15} y *11* 1.58% *30*	0+	Δ –42999 *3*, Q_α 2822.0 *17*	α(100%)	
^{186}Ir	16.64 h *3*	5+	Q_{EC} 3831 *20*, Q_α 3850 *100*	EC+β+(100%)	297, 137, 435, 773, 636
^{186}Ir(0+x)	2.0 h *1*	2-		EC+β+(<100%), IT	
^{186}Pt	2.0 h *1*	0+	Q_{EC} 1380 *38*, Q_α 4325 *20*	EC+β+(100%), α(~0.00014%)	277, 612, 636, 367, 570
^{186}Au	10.7 m *5*	3-	Q_{EC} 6120 *140*, Q_α 4906 *15*	EC+β+(100%)	192, 299, 765, 416, 798
^{186}Hg	1.38 m *7*	0+	Q_{EC} 3230 *140*, Q_α 5206 *15*	EC+β+(99.984% *5*), α(0.016% *5*)	112, 252, 192, 228, 78
^{186}Tl(0+x)	27.5 s *10*	(7+)	Q_{EC} (8500 *300*), Q_α 5892 *50*	EC+β+(100%), α(0.006% *2*)	
^{186}Tl(374.0+x)	2.9 s *2*	(10-)		IT(100%)	
^{186}Pb	4.79 s *5*	0+	Q_{EC} (5400 *300*), Q_α 6471 *7*	α(~100%)	
^{186}Bi			Q_{EC} (11300 *600*), Q_α (7700 *200*)		
^{187}Ta			Q_{β^-}(3000 *300*)		
^{187}W	23.72 h *6*	3/2-	Q_{β^-} 1311.2 *13*	β–(100%)	686, 480, 72, 134, 618
^{187}Re	4.35×10^{10} y *13* 62.60% *2*	5/2+	Δ –41218 *3*, Q_{β^-} 2.663 *19*	β–(100%), α(<0.0001%)	
^{187}Os	1.6% *3*	1/2-	Δ –41221 *3*, Q_α 2720.2 *15*		
^{187}Ir	10.5 h *3*	3/2+	Q_{EC} 1502 *6*, Q_α 3667 *10*	EC+β+(100%)	913, 427, 401, 611, 978
^{187}Ir(186.15)	30.3 ms *6*	9/2-		IT(100%)	186, 110, 76
^{187}Pt	2.35 h *3*	3/2-	Q_{EC} (2980 *180*), Q_α (4510 *150*)	EC+β+(100%)	106, 202, 110, 709, 305
^{187}Au	8.4 m *3*	1/2+	Q_{EC} (3730 *100*), Q_α 4793 *50*	EC+β+(100%), α(0.003% *syst*)	1332, 1408, 915, 1267, 426
^{187}Au(120.51)	2.3 s *1*	9/2-		IT(100%)	101, 19
^{187}Hg	2.4 m *3*	13/2+	Q_{EC} (4900 *300*), Q_α (5080 *73*)	EC+β+(100%), α(>1.2×10^{-4}%)	
^{187}Hg(134)	1.9 m *3*	3/2-		EC+β+(100%), α(>2.5×10^{-4}% *10*)	233, 376, 240, 104, 271
^{187}Tl	~51 s	(1/2+)	Q_{EC} (5900 *500*), Q_α 5539 *8*	EC+β+, α	
^{187}Tl(335)	15.60 s *12*	(9/2-)		α, EC+β+, IT	161
^{187}Pb(0+x)	18.3 s *3*	(13/2+)	Q_{EC} (7300 *500*), Q_α 6395 *7*	EC+β+(98.0%), α(2.0%)	
^{187}Pb(0+y)	15.2 s *3*			α, EC+β+	
^{187}Bi	35 ms *4*	(9/2-)	Q_{EC} (8800 *500*), Q_α (7600 *100*)	α(>50%)	
^{187}Bi(60)	0.8 ms *6*	(1/2+)		α(>50%)	
^{188}Ta			Q_{β^-}(4900 *300*)		
^{188}W	69.4 d *5*	0+	Q_{β^-} 349 *3*	β–(100%)	291, 227, 64, 208, 142
^{188}Re	16.98 h *2*	1-	Q_{β^-} 2120.4 *4*	β–(100%)	155, 633, 478, 931, 829
^{188}Re(172.069)	18.6 m *1*	(6)-		IT(100%)	64, 106, 92, 156, 170
^{188}Os	13.3% *7*	0+	Δ –41139 *3*, Q_α 2142.6 *15*		
^{188}Ir	41.5 h *5*	1-	Q_{EC} 2809 *7*, Q_α 3469 *8*	EC+β+(100%)	155, 2215, 633, 478, 2060
^{188}Ir(923.5+x)	4.2 ms *2*				
^{188}Pt	10.2 d *3*	0+	Q_{EC} 506 *7*, Q_α 4007 *5*	EC(100%), α(2.6×10^{-5}% *3*)	188, 195, 381, 423, 140
^{188}Au	8.84 m *6*	1(-)	Q_{EC} (5300 *100*), Q_α (4700 *300*)	EC+β+(100%)	266, 340, 606, 405, 671
^{188}Hg	3.25 m *15*	0+	Q_{EC} (2300 *150*), Q_α 4710 *20*	EC+β+(100%), α(3.7×10^{-5}% *8*)	67, 190, 83, 115, 262
^{188}Tl(0+y)	71 s *2*	(2-)	Q_{EC} (7800 *300*), Q_α (5400 *300*)	EC+β+(100%)	
^{188}Tl(0+x)	71 s *1*	(7+)		EC+β+(100%)	
^{188}Tl(268.8+x)	41 ms *4*	(9-)		IT(100%)	
^{188}Pb	24.2 s *10*	0+	Q_{EC} (4800 *300*), Q_α 6111 *4*	EC+β+(78% *7*), α(22% *7*)	758, 185
^{188}Bi(0+x)	0.21 s *9*		Q_{EC} (10400 *400*), Q_α 7275 *25*	α, EC+β+	
^{188}Bi(0+y)	44 ms *3*			α, EC+β+	
^{189}W	11.5 m *3*	(3/2-)	Q_{β^-} 2500 *200*	β–(100%)	258, 417, 550, 855, 955
^{189}Re	24.3 h *4*	5/2+	Q_{β^-} 1009 *8*	β–(100%)	217, 219, 245, 186, 147
^{189}Os	16.1% *8*	3/2-	Δ –38988 *3*		
^{189}Os(30.814)	5.8 h *1*	9/2-		IT(100%)	31
^{189}Ir	13.2 d *1*	3/2+	Q_{EC} 532 *13*, Q_α 2941 *13*	EC(100%)	245, 70, 59, 36, 276
^{189}Ir(372.18)	13.3 ms *3*	11/2-		IT(100%)	301, 187, 114, 258, 72
^{189}Ir(2333.3)	3.7 ms *2*	(25/2)+		IT(100%)	546, 248, 702, 466, 301

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{189}Pt	10.87 h *12*	3/2-	Q_{EC} 1971 *14*, Q_{α} 3899 *11*	EC+β+(100%)	721, 94, 569, 243, 545
^{189}Au	28.7 m *3*	1/2+	Q_{EC} (2850 *200*), Q_{α} (4400 *300*)	EC+β+(100%), α(<3×10^{-5}%)	713, 813, 448, 348, 441
^{189}Au(247.23)	4.59 m *11*	11/2-		EC+β+(~100%), IT(>0%)	166, 320, 19, 6
^{189}Hg	7.6 m *1*	3/2-	Q_{EC} (3950 *200*), Q_{α} (4400 *400*)	EC+β+(100%), α(<3×10^{-5}%)	321, 78, 565, 435, 239
^{189}Hg(0+x)	8.6 m *1*	13/2+		EC+β+(100%), α(<3×10^{-5}%)	
^{189}Tl	2.3 m *2*	(1/2+)	Q_{EC} 5180 *200*, Q_{α} (4900 *400*)	EC+β+(100%)	334, 942, 451, 522, 64
^{189}Tl(281)	1.4 m *1*	(9/2-)		EC+β+(100%), IT(<4%)	318, 216, 335, 228, 445
^{189}Pb(x)51	s *3*		Q_{EC} (6700 *400*), Q_{α} (5863 *60*)	EC+β+(>99%), α(~0.4%)	
^{189}Bi	680 ms *30*	(9/2-)	Q_{EC} (8000 *500*), Q_{α} 7267 *4*	α(>50%), EC+β+(<50%)	
^{189}Bi(92)~5 ms		(1/2+)		α(>50%), EC+β+(<50%)	
^{190}W	30.0 m *15*	0+	Q_{β^-} 1270 *70*	β–(100%)	158, 162
^{190}Re	3.1 m *3*	(2)-	Q_{β^-} 3140 *210*	β–(100%)	187, 558, 224, 569, 829
^{190}Re(119.12+x)	3.2 h *2*	(6-)		β–(54.4% *20*), IT(45.6% *20*)	
^{190}Os	26.4% *12*	0+	Δ –38708 *3*		
^{190}Os(1705.4)	9.9 m *1*	(10)-		IT(100%)	616, 503, 361, 187, 39
^{190}Ir	11.78 d *10*	(4)+	Q_{EC} 2000 *200*, Q_{β^-} 620 *200* Q_{α} 2800 *200*	EC+β+(100%), β–(<0.002%)	187, 605, 519, 558, 569
^{190}Ir(26.3)	1.2 h	(7)+		IT(100%)	26
^{190}Ir(175.0)	3.25 h *20*	(11)-		EC+β+(94.4% *8*), IT(5.6% *8*)	616, 503, 361, 187, 39
^{190}Pt	6.5×10^{11} y *3* 0.01% *1*	0+	Δ –37325 *6*, Q_{α} 3249 *6*	α(100%)	
^{190}Au	42.8 m *10*	1-	Q_{EC} 4442 *15*, Q_{α} 3860 *26*	EC+β+(100%), α(<1×10^{-6}%)	296, 302, 598, 2383, 2416
^{190}Au(0+x)	125 ms *20*	(11-)		IT, EC+β+	
^{190}Hg	20.0 m *5*	0+	Q_{EC} (1470 *150*), Q_{α} (3950 *150*)	EC+β+(100%), α(<5×10^{-5}%)	143, 172, 155, 130, 165
^{190}Tl(0+x)	2.6 m *3*	(2)-	Q_{EC} 7000 *400*, Q_{α} (4800 *500*)	EC+β+(100%)	
^{190}Tl(0+y)	3.7 m *3*	(7+)		EC+β+(100%)	
^{190}Pb	1.2 m *1*	0+	Q_{EC} (4100 *500*), Q_{α} 5698 *5*	EC+β+(99.1% *2*), α(0.9% *2*)	942, 151, 598, 142, 376
^{190}Bi(0+x)	6.3 s *1*		Q_{EC} (9600 *300*), Q_{α} 6862 *5*	α(82%$^{+18}_{-31}$), EC+β+(18%$^{+31}_{-18}$)	
^{190}Bi(0+y)	6.2 s *1*			α(68% *23*), EC+β+(32% *23*)	
^{190}Po		0+	Q_{EC} (6100 *300*), Q_{α} 7643 *20*		
^{191}Re	9.8 m *5*	(3/2+,1/2+)	Q_{β^-} 2045 *10*	β–(100%)	
^{191}Os	15.4 d *1*	9/2-	Q_{β^-} 313.7 *11*	β–(100%)	129, 82, 42, 47
^{191}Os(74.382)	13.10 h *5*	3/2-		IT(100%)	74
^{191}Ir	37.3% *5*	3/2+	Δ –36709 *3*, Q_{α} 2083.9 *15*		
^{191}Ir(171.24)	4.94 s *3*	11/2-		IT(100%)	129, 82, 42, 47
^{191}Ir(2047+x)	5.5 s *7* 37.3% *5*			IT(100%)	
^{191}Pt	2.802 d *25*	3/2-	Q_{EC} 1019 *4*, Q_{α} 3105 *4*	EC(100%)	539, 409, 360, 82, 172
^{191}Au	3.18 h *8*	3/2+	Q_{EC} 1830 *50*, Q_{α} 3433 *51*	EC+β+(100%)	586, 278, 674, 284, 400
^{191}Au(266.2)	0.92 s *11*	(11/2-)		IT(100%)	253, 241, 14, 11
^{191}Hg	49 m *10*	(3/2-)	Q_{EC} 3180 *70*, Q_{α} (3640 *200*)	EC+β+(100%)	253, 196, 225, 241, 331
^{191}Hg(0+x)	50.8 m *15*	13/2+		EC+β+(100%)	
^{191}Tl		(1/2+)	Q_{EC} (4490 *200*), Q_{α} (4400 *300*)		
^{191}Tl(299)	5.22 m *16*	9/2(-)		EC+β+(100%)	216, 326, 265, 336, 581
^{191}Pb	1.33 m *8*	(3/2-)	Q_{EC} (5900 *300*), Q_{α} (5410 *110*)	EC+β+(99.987% *5*), α(0.013% *5*)	
^{191}Pb(138)	2.18 m *8*	(13/2+)		EC+β+(100%), α(~0.02%)	387, 712, 614, 937, 325
^{191}Bi	12 s *1*	(9/2-)	Q_{EC} (7300 *500*), Q_{α} 6781 *5*	α(60% *20*), EC+β+(40% *20*)	
^{191}Bi(242)	150 ms *15*	(1/2+)		α(>50%), EC+β+(<50%)	
^{191}Po	15.5 ms$^{+60}_{-35}$		Q_{EC} (8000 *500*), Q_{α} 7471 *20*	α	
^{192}Re	16 s *1*		Q_{β^-}(4170 *200*)	β–(100%)	467, 751, 489, 283, 206
^{192}Os	41.0% *8*	0+	Δ –35882 *4*		
^{192}Os(2015.39)	5.9 s *1*	(10-)		IT(>87%), β–(<13%)	569, 206, 453, 302, 485
^{192}Ir	73.831 d *8*	4(+)	Q_{EC} 1046.2 *23*, Q_{β^-} 1459.7 *19*	β–(95.24% *4*), EC(4.76% *4*)	206, 485, 374, 201, 489
^{192}Ir(56.74)	1.45 m *5*	1(-)		IT(99.982%), β–(0.018%)	57
^{192}Ir(155.16)	241 y *9*	(9)		IT(100%)	155
^{192}Pt	0.79% *6*	0+	Δ –36296 *3*, Q_{α} 2418.1 *24*		
^{192}Au	4.94 h *9*	1-	Q_{EC} 3516 *16*, Q_{α} 3125 *17*	EC+β+(100%)	317, 296, 2237, 612, 308
^{192}Au(135.4)	29 ms	(5)+		IT(100%)	104, 63, 41, 32
^{192}Au(431.6)	160 ms *20*	(11-)		IT(100%)	60, 147, 129, 108, 18
^{192}Hg	4.85 h *20*	0+	Q_{EC} (700 *300*), Q_{α} (3300 *300*)	EC(100%), α(<4×10^{-6}%)	275, 157, 307, 186, 32
^{192}Tl(0+x)	9.6 m *4*	(2-)	Q_{EC} (6120 *200*), Q_{α} (4150 *220*)	EC+β+(100%)	
^{192}Tl(0+y)	10.8 m *2*	(7+)		EC+β+(100%)	
^{192}Pb	3.5 m *1*	0+	Q_{EC} (3400 *300*), Q_{α} 5221 *5*	EC+β+(99.9943% *10*), α(0.0057% *10*)	1195, 608, 168, 782, 371
^{192}Bi(0+x)	37 s *3*	(2+,3+)	Q_{EC} (8900 *300*), Q_{α} 6376 *5*	EC+β+(82% *9*), α(18% *9*)	
^{192}Bi(105+x)	39.6 s *4*	(10-)		EC+β+(90.8% *20*), α(9.2% *20*)	
^{192}Po	0.034 s *3*	0+	Q_{EC} (5700 *300*), Q_{α} 7320 *7*	α(~99%), EC+β+(~1%)	
^{193}Os	30.5 h *4*	3/2-	Q_{β^-} 1140.5 *24*	β–(100%)	139, 461, 73, 557, 322
^{193}Ir	62.7% *5*	3/2+	Δ –34536 *3*		
^{193}Ir(80.22)	10.53 d *4*	11/2-		IT(100%)	80
^{193}Pt	50 y *9*	1/2-	Q_{EC} 56.6 *3*, Q_{α} 2083.2 *15*	EC(100%)	
^{193}Pt(149.78)	4.33 d *3*	13/2+		IT(100%)	136, 13, 2

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{193}Au	17.65 h *15*	3/2+	Q_{EC} 1069 *9*, Q_{α} 2619 *16*	EC(100%)	186, 256, 268, 174, 113
^{193}Au(290.17)	3.9 s *3*	11/2-		IT(99.97%), EC+β+(~0.03%)	258, 220, 38, 32
^{193}Hg	3.80 h *15*	3/2-	Q_{EC} 2340 *17*, Q_{α} 2989 *22*	EC+β+(100%)	861, 1119, 789, 581, 828
^{193}Hg(140.76)	11.8 h *2*	13/2+		EC+β+(92.9% *9*), IT(7.1% *9*)	258, 408, 573, 932, 218
^{193}Tl	21.6 m *8*	1/2(+)	Q_{EC} (3640 *250*), Q_{α} (3800 *300*)	EC+β+(100%)	324, 1045, 676, 1579, 344
^{193}Tl(365.2+x)	2.11 m *15*	(9/2-)		IT(75%), EC+β+(25%)	
^{193}Pb		(3/2-)	Q_{EC} (5200 *300*), Q_{α} (5000 *300*)	EC+β+	
^{193}Pb(100)	5.8 m *2*	(13/2+)		EC+β+(100%)	365, 392, 716, 736, 755
^{193}Bi	67 s *3*	(9/2-)	Q_{EC} (6500 *400*), Q_{α} 6305 *5*	EC+β+(95% *3*), α(5% *3*)	
^{193}Bi(307)	3.2 s *7*	(1/2+)		α(90% *20*), EC+β+(~10%)	
^{193}Po(0+x)	360 ms *50*	(3/2-)	Q_{EC} (7500 *400*), Q_{α} 7096 *50*	α	
^{193}Po(0+y)	260 ms *20*	(13/2+)		α	
^{193}At(0+x)	~40 ms		Q_{EC} (8500 *500*), Q_{α} 7526 *31*	α	
^{194}Os	6.0 y *2*	0+	Q_{β^-} 96.6 *20*	β–(100%)	43, 82
^{194}Ir	19.28 h *13*	1-	Q_{β^-} 2246.8 *16*	β–(100%)	328, 294, 645, 1151, 939
^{194}Ir(147.078)	31.85 ms *24*	(4+)		IT(100%)	112, 84, 63, 82, 30
^{194}Ir(190.0+x)	171 d *11*	(10,11)		β–(100%)	
^{194}Pt	32.9% *6*	0+	Δ –34779 *3*		
^{194}Au	38.02 h *10*	1-	Q_{EC} 2492 *11*	EC+β+(100%)	328, 294, 1469, 2044, 948
^{194}Au(107.4)	600 ms *8*	(5+)		IT(100%)	45, 35, 27
^{194}Au(475.8)	420 ms *10*	(11-)		IT(100%)	171, 129, 137, 162, 34
^{194}Hg	444 y *77*	0+	Q_{EC} 40 *20*, Q_{α} 2653 *24*	EC(100%)	
^{194}Tl	33.0 m *5*	2-	Q_{EC} (5280 *210*), Q_{α} (3490 *210*)	EC+β+(100%), α(<1×10^{-7}%)	428, 637, 645, 1040, 1073
^{194}Tl(0+s)	32.8 m *2*	(7+)		EC+β+(100%)	
^{194}Pb	12.0 m *5*	0+	Q_{EC} (2700 *300*), Q_{α} 4738 *20*	EC+β+(100%), α(7.3×10^{-6}% *29*)	582, 1519, 204, 368, 225
^{194}Bi	95 s *3*	(3+)	Q_{EC} 8200 *400*, Q_{α} 5918 *5*	EC+β+(99.54% *25*), α(0.46% *25*)	151
^{194}Bi(0+x)	115 s *4*	(10-)		EC+β+(99.80% *7*), α(0.20% *7*)	
^{194}Bi(0+y)	125 s *2*	(6+,7+)		EC+β+(100%)	
^{194}Po	0.392 s *4*	0+	Q_{EC} (5200 *500*), Q_{α} 6987 *3*	α(100%)	658
^{194}At(0+x)	~40 ms		Q_{EC} (10000 *3000*), Q_{α} (7310 *160*)	α	
^{194}At(0+y)	~250 ms			α	
^{195}Os	6.5 m		Q_{β^-} 2000 *500*	β–(100%)	
^{195}Ir	2.5 h *2*	3/2+	Q_{β^-} 1120.0 *16*	β–(100%)	99, 211, 31, 130
^{195}Ir(100)	3.8 h *2*	11/2-		β–(95% *5*), IT(5% *5*)	100
^{195}Pt	33.8% *6*	1/2-	Δ –32812 *3*		
^{195}Pt(259.30)	4.02 d *1*	13/2+		IT(100%)	99, 129.7, 31, 129.5, 239
^{195}Au	186.09 d *4*	3/2+	Q_{EC} 226.8 *10*	EC(100%)	99, 130, 31, 211, 200
^{195}Au(318.58)	30.5 s *2*	11/2-		IT(100%)	262, 200, 61, 319, 57
^{195}Hg	9.9 h *5*	1/2-	Q_{EC} 1510 *50*, Q_{α} 2190 *50*	EC+β+(100%)	780, 61, 585, 180, 600
^{195}Hg(176.07)	41.6 h *8*	13/2+		IT(54.2% *20*), EC+β+(45.8% *20*)	262, 560, 388, 200, 1241
^{195}Tl	1.16 h *5*	1/2+	Q_{EC} (2810 *140*), Q_{α} (3170 *140*)	EC+β+(100%)	564, 884, 1364, 242, 279
^{195}Tl(482.63)	3.6 s *4*	9/2-		IT(100%)	384, 99
^{195}Pb	~15 m	3/2-	Q_{EC} (4500 *400*), Q_{α} (4500 *400*)	EC+β+(100%)	883, 394, 871, 696, 778
^{195}Pb(203.0)	15.0 m *12*	13/2+		EC+β+(100%)	384, 394, 878, 708, 608
^{195}Bi	183 s *4*	(9/2-)	Q_{EC} (5900 *400*), Q_{α} 5833 *5*	EC+β+(99.967% *22*), α(0.033% *22*)	808, 832, 776, 134, 695
^{195}Bi(401)	87 s *1*	(1/2+)		EC+β+(67% *17*), α(33% *17*)	
^{195}Po	4.64 s *9*	(3/2-)	Q_{EC} (6800 *300*), Q_{α} 6746 *50*	α(75% *15*), EC+β+(25% *15*)	
^{195}Po(230)	1.92 s *2*	(13/2+)		α(~90%), EC+β+(~10%), IT(<0.01%)	
^{195}At			Q_{EC} (7900 *500*), Q_{α} 7356 *50*	α(>75%), EC+β+(<25%)	
^{196}Os	34.9 m *2*	0+	Q_{β^-} 1158 *56*	β–(100%)	408, 126, 315, 207, 258
^{196}Ir	52 s *1*	(0-)	Q_{β^-} 3209 *38*	β–(100%)	356, 780, 447, 333, 1047
^{196}Ir(410)	1.40 h *2*	(10,11-)		β–(~100%), IT(<0.3%)	
^{196}Pt	25.3% *6*	0+	Δ –32663 *3*		
^{196}Au	6.183 d *10*	2-	Q_{EC} 1506 *3*, Q_{β^-} 686 *3*	EC+β+(93.05% *10*), β–(6.95% *10*)	356, 333, 1091, 326, 758
^{196}Au(84.660)	8.1 s *2*	5+		IT(100%)	85
^{196}Au(595.66)	9.6 h *1*	12-		IT(100%)	148, 188, 168, 285, 316
^{196}Hg	0.15% *1*	0+	Δ –31843 *4*, Q_{α} 2027 *4*		
^{196}Tl	1.84 h *3*	2-	Q_{EC} (4380 *140*), Q_{α} (2890 *140*)	EC+β+(100%)	426, 611, 636, 1496, 1621
^{196}Tl(394.2)	1.41 h *2*	(7+)		EC+β+(95.5%), IT(4.5%)	426, 636, 696, 505, 611
^{196}Pb	37 m *3*	0+	Q_{EC} (2050 *200*), Q_{α} (4200 *300*)	EC+β+(~100%), α(<3×10^{-5}%)	253, 502, 367, 192, 240
^{196}Bi	308 s *12*	(3+)	Q_{EC} (7360 *250*), Q_{α} 5460 *50*	EC+β+(~100%), α(0.00115% *34*)	1049, 689, 777, 1450, 942
^{196}Bi(167)	0.6 s *5*	(7+)		IT(100%)	158, 11
^{196}Bi(269)	240 s *3*	(10-)		EC+β+(74.2% *25*), IT(25.8% *25*), α(0.00038% *10*)	1049, 372, 689, 59, 337
^{196}Po	5.8 s *2*	0+	Q_{EC} (4600 *300*), Q_{α} 6657 *3*	α(~98%), EC+β+(~2%)	
^{196}At	0.3 s *1*		Q_{EC} (9500 *300*), Q_{α} 7201 *50*	α(~97%), EC+β+(~3%)	
^{196}Rn	3 ms $^{+7}_{-2}$	0+	Q_{EC} (6200 *300*), Q_{α} 7623 *30*	α(~100%)	
^{197}Ir	5.8 m *5*	3/2+	Q_{β^-} 2155 *20*	β–(100%)	470, 431, 816, 378, 457
^{197}Ir(115)	8.9 m *3*	11/2-		β–(99.75% *10*), IT(0.25% *10*)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{197}Pt	19.8915 h *19*	1/2-	Q_{β^-}718.9 *6*	β–(100%)	77, 191, 269
^{197}Pt(399.59)	95.41 m *18*	13/2+		IT(96.7% *4*), β–(3.3% *4*)	347, 53
^{197}Au	100%	3/2+	Δ –31157 *3*		
^{197}Au(409.15)	7.73 s *6*	11/2-		IT(100%)	279, 130, 202, 77, 409
^{197}Hg	64.14 h *5*	1/2-	Q_{EC} 600 *3*	EC(100%)	77, 191, 269
^{197}Hg(298.93)	23.8 h *1*	13/2+		EC(8.6% *7*), IT(91.4% *7*)	279, 130, 202, 77, 409
^{197}Tl	2.84 h *4*	1/2+	Q_{EC} 2181 *32*, Q_α 2609 *33*	EC+β+(100%)	426, 152, 1411, 578, 433
^{197}Tl(608.22)	0.54 s *1*	9/2-		IT(100%)	386, 222
^{197}Pb	8 m *2*	3/2-	Q_{EC} (3580 *110*), Q_α (3850 *100*)	EC+β+(100%)	386, 761, 375, 1261, 1854
^{197}Pb(319.31)	43 m *1*	13/2+		EC+β+(81% *2*), IT(19% *2*)	386, 388, 222, 774, 696
^{197}Bi	9.33 m *50*	(9/2-)	Q_{EC} (5200 *300*), Q_α (5387 *50*)	EC+β+(100%), α(1×10^{-4}% *syst*)	855, 85, 867, 828, 1005
^{197}Bi(500)	5.04 m *16*	(1/2+)		EC+β+(45% *40*), α(55% *40*), IT(<0.3%)	1838, 1809, 215
^{197}Po	53.6 s *10*	(3/2-)	Q_{EC} (6200 *300*), Q_α 6412 *50*	EC+β+(56% *7*), α(44% *7*)	
^{197}Po(204)	25.8 s *1*	(13/2+)		α(84% *9*), EC+β+(16% *9*), IT(0.01% *syst*)	
^{197}At	0.35 s *4*	(9/2-)	Q_{EC} (7200 *400*), Q_α 7103 *50*	α(96% *4*), EC+β+(4% *4*)	
^{197}At(52)	3.7 s *25*	(1/2+)		α, EC+β+	
^{197}Rn	65 ms$^{+25}_{-14}$	(3/2-)	Q_{EC} (7800 *400*), Q_α 7411 *50*	α(~100%)	
^{197}Rn(0+x)	19 ms$^{+8}_{-4}$	(13/2+)		α(~100%)	
^{198}Ir	8 s *1*		Q_{β^-}(4100 *200*)	β–(100%)	507, 407
^{198}Pt	7.2% *2*	0+	Δ –29923 *4*		
^{198}Au	2.69517 d *21*	2-	Q_{EC} 325 *3*, Q_{β^-}1372.5 *5*	β–(100%)	412, 676, 1088
^{198}Au(811.7)	2.27 d *2*	(12-)		IT(100%)	215, 97, 180, 204, 115
^{198}Hg	9.97% *8*	0+	Δ –30970 *3*		
^{198}Tl	5.3 h *5*	2-	Q_{EC} 3460 *80*, Q_α 2351 *81*	EC+β+(100%)	412, 676, 636, 1201, 2040
^{198}Tl(543.5)	1.87 h *3*	7+		IT(46% *2*), EC+β+(54% *2*)	636, 412, 587, 226, 490
^{198}Tl(742.3)	32.1 ms *10*	(10-)		IT(100%)	283, 199, 260, 261, 23
^{198}Pb	2.40 h *10*	0+	Q_{EC} (1410 *120*), Q_α (3721 *96*)	EC+β+(100%)	290, 365, 173, 865, 260
^{198}Bi	10.3 m *3*	(2+,3+)	Q_{EC} (6560 *200*), Q_α (5000 *100*)	EC+β+(100%)	
^{198}Bi(x)	11.6 m *3*	(7+)		EC+β+(100%)	
^{198}Bi(248.5+x)	7.7 s *5*	(10-)		IT(100%)	
^{198}Po	1.76 m *3*	0+	Q_{EC} (4020 *240*), Q_α 6309.1 *21*	α(57% *2*), EC+β+(43% *2*)	931
^{198}At	4.2 s *3*	(3+)	Q_{EC} 8800 *400*, Q_α 6893 *3*	α(90% *10*), EC+β+(10% *10*)	181, 218
^{198}At(102+x)	1.0 s *2*	(10-)		α(84% *16*), EC+β+(16% *16*)	
^{198}Rn	64 ms *2*	0+	Q_{EC} (5600 *500*), Q_α 7352 *5*	α, EC+β+	
^{199}Ir			Q_{β^-}2991 *41*		
^{199}Pt	30.80 m *21*	5/2-	Q_{β^-}1703 *3*	β–(100%)	543, 494, 317, 186, 192
^{199}Pt(424)	13.6 s *4*	(13/2)+		IT(100%)	392, 32
^{199}Au	3.139 d *7*	3/2+	Q_{β^-}452.3 *7*	β–(100%)	158, 208, 50
^{199}Hg	16.87% *10*	1/2-	Δ –29563 *3*		
^{199}Hg(532.48)	42.6 m *2*	13/2+		IT(100%)	158, 374, 414, 119, 256
^{199}Tl	7.42 h *8*	1/2+	Q_{EC} 1445 *99*, Q_α 2042 *99*	EC+β+(100%)	455, 208, 247, 158, 284
^{199}Tl(749.7)	28.4 ms *2*	9/2-		IT(100%)	367, 383, 353, 720, 29
^{199}Pb	90 m *10*	3/2-	Q_{EC} 2883 *92*, Q_α 3416 *83*	EC+β+(100%)	367, 353, 1135, 720, 1658
^{199}Pb(430)	12.2 m *3*	13/2+		IT(93%), EC+β+(7%)	367, 383, 2752, 2613, 2399
^{199}Bi	27 m *1*	9/2-	Q_{EC} 4350 *120*, Q_α (4959 *50*)	EC+β+(100%)	560, 425, 842, 946, 1053
^{199}Bi(680)	24.70 m *15*	(1/2+)		EC+β+(99% *1*), α(~0.01%), IT(<2%)	680
^{199}Po	5.48 m *16*	3/2-	Q_{EC} (5600 *400*), Q_α 6074.3 *20*	EC+β+(88% *2*), α(12% *2*)	246, 846, 207, 546, 453
^{199}Po(310)	4.13 m *6*	13/2+		EC+β+(59% *4*), α(39% *4*), IT(2.1%)	1002, 1034, 362, 500, 146
^{199}At	7.2 s *5*	(9/2-)	Q_{EC} (6600 *400*), Q_α 6780 *50*	α(90% *5*), EC+β+(10% *5*)	
^{199}Rn	0.62 s *3*	(3/2-)	Q_{EC} (7200 *300*), Q_α 7135 *50*	α(94% *syst*), EC+β+(6% *syst*)	
^{199}Rn(0+x)	0.32 s *2*	(13/2+)		α(97% *syst*), EC+β+(3% *syst*)	
^{200}Pt	12.5 h *3*	0+	Q_{β^-}658 *55*	β–(100%)	76, 136, 244, 60, 227
^{200}Au	48.4 m *3*	1(-)	Q_{β^-}2244 *51*	β–(100%)	368, 1225, 1263, 1570, 661
^{200}Au(962)	18.7 h *5*	12-		β–(82% *2*), IT(18% *2*)	333, 146, 60, 133, 219
^{200}Hg	23.10% *16*	0+	Δ –29520 *3*		
^{200}Tl	26.1 h *1*	2-	Q_{EC} 2456 *6*	EC+β+(100%)	368, 1206, 579, 828, 1515
^{200}Tl(753.6)	34.3 ms *10*	7+		IT(100%)	541, 213
^{200}Pb	21.5 h *4*	0+	Q_{EC} 811 *14*, Q_α 3165 *13*	EC(100%)	148, 257, 236, 268, 451
^{200}Bi	36.4 m *5*	7+	Q_{EC} 5893 *94*, Q_α (4680 *100*)	EC+β+(100%)	1027, 462, 420, 245, 546
^{200}Bi(0+x)	31 m *2*	(2+)		EC+β+(>90%), IT(<10%)	
^{200}Bi(428.20)	0.40 s *5*	(10-)		IT(100%)	428
^{200}Po	11.5 m *1*	0+	Q_{EC} (3350 *170*), Q_α 5981.5 *20*	α(11.1% *3*), EC+β+(88.9% *3*)	671, 618, 434, 797, 695
^{200}At	43 s *1*	(3+)	Q_{EC} (7970 *250*), Q_α 6596.4 *14*	α(57% *6*), EC+β+(43% *6*)	666, 611, 485, 565, 535
^{200}At(104)	47 s *1*	(7+)		α(43% *7*), EC+β+(<57%)	102, 11, 158
^{200}At(335)	3.5 s *2*	(10-)		α(~10.5%), IT(~85%), EC(~4.5%)	102, 11, 158

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^{200}Rn	1.06 s *2*	0+	Q_{EC} (5000 *300*), Q_α 7043 *3*	α(~98%), EC+β+(~2%)	
^{201}Pt	2.5 m *1*	(5/2-)	Q_{EC} (10100 *300*), Q_{β^-} 2660 *50*	β–(100%)	1760, 230, 150, 70
^{201}Au	26 m *1*	3/2+	Q_{β^-} 1263 *3*	β–(100%)	543, 517, 613, 167, 553
^{201}Hg	13.18% *8*	3/2-	Δ –27679 *3*		
^{201}Tl	72.912 h *17*	1/2+	Q_{EC} 483 *15*	EC(100%)	167, 135, 32, 31, 166
^{201}Tl(919.50)	2.035 ms *7*	(9/2-)		IT(100%)	588, 331, 227, 361
^{201}Pb	9.33 h *3*	5/2-	Q_{EC} 1903 *34*, Q_α 2839 *31*	EC+β+(100%)	331, 361, 946, 908, 692
^{201}Pb(629.14)	61 s *2*	13/2+		IT(>99%), EC+β+(<1%)	629
^{201}Bi	108 m *3*	9/2-	Q_{EC} 3842 *44*, Q_α 4500 *6*	EC+β+(100%), α(<1×10^{-4}%)	629, 936, 1014, 786, 902
^{201}Bi(846.34)	59.1 m *6*	1/2+		EC(>93%), IT(<6.8%), α(~0.3%)	846
^{201}Po	15.3 m *2*	3/2-	Q_{EC} (4880 *110*), Q_α 5799.0 *17*	EC+β+(98.4% *3*), α(1.6% *3*)	890, 240, 904, 1187, 593
^{201}Po(424)	8.9 m *2*	13/2+		IT(56% *14*), EC(41% *10*), α(~2.9%)	967, 964, 412, 538, 534
^{201}At	89 s *3*	(9/2-)	Q_{EC} (5800 *300*), Q_α 6473.3 *16*	α(71% *7*), EC+β+(29% *7*)	571, 418, 7
^{201}Rn	7.0 s *4*	(3/2-)	Q_{EC} (6600 *300*), Q_α 6861 *50*	α(~80%), EC+β+(~20%)	
^{201}Rn(280)	3.8 s *4*	(13/2+)		α(~90%), EC+β+(~10%)	
^{201}Fr	48 ms *15*	(9/2-)	Q_{EC} (7900 *400*), Q_α 7538 *50*	α(100%), EC+β+(<1%)	
^{202}Pt	44 h *15*	0+	Q_{β^-} (1800 *300*)	β–(100%)	244, 228
^{202}Au	28.8 s *19*	(1-)	Q_{β^-} 2950 *170*	β–(100%)	440, 1125, 1306, 1204, 908
^{202}Hg	29.86% *20*	0+	Δ –27362 *3*		
^{202}Tl	12.23 d *2*	2-	Q_{EC} 1365 *15*	EC+β+(100%)	440, 520, 960
^{202}Pb	5.25×10^4 y *28*	0+	Q_{EC} 50 *15*, Q_α 2598 *10*	EC(>99%), α(<1%)	
^{202}Pb(2169.84)	3.53 h *1*	9-		IT(90.5% *5*), EC(9.5% *5*)	490, 460, 390, 241, 212
^{202}Bi	1.72 h *5*	5+	Q_{EC} 5152 *52*, Q_α 4289 *95*	EC+β+(100%), α(<1×10^{-5}%)	961, 422, 657, 954, 579
^{202}Po	44.7 m *5*	0+	Q_{EC} (2820 *110*), Q_α 5701.0 *17*	EC+β+(98.0% *2*), α(2.0% *2*)	689, 316, 166, 791, 717
^{202}At	184 s *1*	(2+,3+)	Q_{EC} (7210 *200*), Q_α 6353.7 *14*	α(57% *43*), EC+β+(~43%)	139, 164
^{202}At(x)	182 s *2*	(7+)		α(8.7% *15*)	
^{202}At(392+x)	0.46 s *5*	(10-)		α(9.6% *11*)	
^{202}Rn	9.85 s *20*	0+	Q_{EC} (4440 *240*), Q_α 6773.6 *19*	α(85% *15*), EC+β+(<30%)	816, 211
^{202}Fr	0.34 s *4*		Q_{EC} 9400 *400*, Q_α 7389 *9*	α(~97%), EC+β+(~3%)	
^{202}Ra	0.7 ms$^{+33}_{-3}$	0+	Q_α 7389 *9*	α(~100%)	
^{203}Au	53 s *2*	3/2+	Q_{β^-} 2124 *4*	β–(100%)	218, 44, 51, 318, 369
^{203}Hg	46.612 d *18*	5/2-	Q_{β^-} 491.8 *12*	β–(100%)	279
^{203}Tl	29.524% *14*	1/2+	Δ –25775 *3*		
^{203}Pb	51.873 h *9*	5/2-	Q_{EC} 975 *6*, Q_α 2338 *7*	EC(100%)	279, 401, 681
^{203}Pb(825.20)	6.3 s *2*	13/2+		IT(100%)	825, 820, 5
^{203}Pb(2949.47)	0.48 s *2*	29/2-		IT(100%)	839, 259, 874, 634, 1027
^{203}Bi	11.76 h *5*	9/2-	Q_{EC} 3253 *22*, Q_α 4146 *98*	EC+β+(100%), α(~1×10^{-5}%)	820, 825, 897, 1847, 1034
^{203}Bi(1098.14)	303 ms *5*	1/2+		IT(100%)	909, 190, 893, 205, 1098
^{203}Po	36.7 m *5*	5/2-	Q_{EC} 4233 *64*, Q_α 5496 *5*	EC+β+(99.89% *2*), α(0.11% *2*)	909, 1091, 893, 215, 1242
^{203}Po(641.49)	45 s *2*	13/2+		IT(~100%), α(~0.04% *syst*)	642
^{203}At	7.4 m *2*	9/2-	Q_{EC} 5060 *120*, Q_α 6210.3 *8*	EC+β+(69% *3*), α(31% *3*)	639, 642, 738, 656, 488
^{203}Rn	45 s *3*	(3/2,5/2)-	Q_{EC} (6000 *400*), Q_α 6629.9 *23*	α(66% *9*), EC+β+(34% *9*)	
^{203}Rn(361)	28 s *2*	(13/2+)		α(~80% *syst*), EC+β+(~20% *syst*)	
^{203}Fr	0.55 s *2*	(9/2-)	Q_{EC} (7200 *400*), Q_α 7277 *50*	α(~95%), EC+β+(~5%)	
^{203}Ra	1.0 ms$^{+50}_{-5}$	(3/2-)	Q_{EC} (7600 *300*), Q_α 7730 *50*	α(~100%)	
^{203}Ra(0+x)	33 ms$^{+22}_{-10}$	(13/2+)		α(~100%)	
^{204}Au	39.8 s *9*	(2-)	Q_{β^-} (3940 *200*)	β–(100%)	437, 1511, 692, 723, 1392
^{204}Hg	6.87% *4*	0+	Δ –24707 *3*		
^{204}Tl	3.78 y *2*	2-	Q_{EC} 347.5 *15*, Q_{β^-} 763.72 *18*	β–(97.10% *12*), EC+β+(2.90% *12*)	
^{204}Pb	>1.4×10^{17} y 1.4% *1*	0+	Δ –25124 *3*		
^{204}Pb(2185.79)	67.2 m *3*	9-		IT(100%)	899, 912, 375, 623, 289
^{204}Bi	11.22 h *10*	6+	Q_{EC} 4449 *26*, Q_α 3965 *27*	EC+β+(100%)	899, 375, 984, 912, 671
^{204}Bi(805.5)	13.0 ms *1*	10-		IT(100%)	752, 53
^{204}Bi(2833.4)	1.07 ms *3*	(17+)		IT(100%)	608, 367, 736, 918, 182
^{204}Po	3.53 h *2*	0+	Q_{EC} 2331 *29*, Q_α 5484.9 *14*	EC+β+(99.34% *1*), α(0.66% *1*)	884, 270, 1016, 535, 762
^{204}At	9.2 m *2*	7+	Q_{EC} 6478 *94*, Q_α 6069.9 *15*	EC+β+(96.2% *2*), α(3.8% *2*)	684, 516, 426, 609, 841
^{204}At(587.30)	108 ms *10*	(10-)		IT(100%)	587
^{204}Rn	1.24 m *3*	0+	Q_{EC} (3820 *170*), Q_α 6545.6 *19*	α(73% *1*), EC+β+(27% *1*)	
^{204}Fr	1.7 s *3*	(3+)	Q_{EC} (8600 *250*), Q_α 7170 *3*	α(~80%), EC+β+(~20%)	113
^{204}Fr(41)	2.6 s *3*	(7+)		α	
^{204}Fr(316)~1	s	(10-)		α	231
^{204}Ra	59 ms$^{+12}_{-9}$	0+	Q_{EC} (5500 *300*), Q_α 7636 *8*	α(~100%)	
^{205}Au	31 s *2*	(3/2+)	Q_{β^-} (3300 *300*)	β–(100%)	379, 468, 946, 813, 1281
^{205}Hg	5.2 m *1*	1/2-	Q_{β^-} 1531 *4*	β–(100%)	204, 416, 1219, 1137, 1433
^{205}Hg(1556.53)	1.10 ms *4*	(13/2+)		IT(100%)	
^{205}Tl	70.476% *14*	1/2+	Δ –23835 *3*		

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{205}Pb	1.53×10^7 y *7*	5/2-	Q_{EC} 51.1 *5*	EC(100%)	
^{205}Pb(1013.839)	5.54 ms *10*	13/2+		IT(100%)	988, 703, 284, 127, 574
^{205}Bi	15.31 d *4*	9/2-	Q_{EC} 2708 *7*, Q_α 3696 *17*	EC+β+(100%)	1764, 703, 988, 1044, 1862
^{205}Po	1.66 h *2*	5/2-	Q_{EC} 3531 *28*, Q_α 5324 *10*	EC+β+(99.96% *1*), α(0.04% *1*)	872, 1001, 850, 837, 1239
^{205}Po(1461.20)	58 ms *1*	19/2-		IT(100%)	719, 161
^{205}At	26.2 m *5*	9/2-	Q_{EC} 4537 *43*, Q_α 6019.7 *17*	EC+β+(90% *2*), α(10% *2*)	719, 669, 629, 520, 311
^{205}Rn	2.8 m *1*	5/2-	Q_{EC} (5250 *120*), Q_α 6386 *50*	EC+β+(77% *4*), α(23% *4*)	265, 465, 620, 675, 730
^{205}Fr	3.85 s *10*	(9/2-)	Q_{EC} (6500 *300*), Q_α 7055 *50*	α(>99%), EC+β+(<1%)	
^{205}Ra	0.22 s *6*		Q_{EC} (7000 *300*), Q_α 7497 *50*	α	
^{206}Hg	8.15 m *10*	0+	Q_{β^-} 1307 *20*	β–(100%)	305, 649, 345
^{206}Tl	4.199 m *15*	0-	Q_{β^-} 1533.5 *7*	β–(100%)	803, 362, 1166
^{206}Tl(2643.11)	3.74 m *3*	(12-)		IT(100%)	453, 686, 266, 216, 1022
^{206}Pb	24.1% *1*	0+	Δ –23801 *3*		
^{206}Bi	6.243 d *3*	6(+)	Q_{EC} 3758 *8*, Q_α 3529 *17*	EC+β+(100%)	803, 881, 516, 1719, 537
^{206}Po	8.8 d *1*	0+	Q_{EC} 1847 *12*, Q_α 5326.5 *13*	EC+β+(94.55% *5*), α(5.45% *5*)	1032, 511, 286, 807, 338
^{206}At	30.0 m *6*	(5)+	Q_{EC} 5714 *52*, Q_α 5888.4 *19*	EC+β+(99.11% *8*), α(0.89% *8*)	68, 41
^{206}Rn	5.67 m *17*	0+	Q_{EC} (3320 *110*), Q_α 6383.8 *17*	α(62% *3*), EC+β+(38% *3*)	498, 325, 387, 773, 483
^{206}Fr	15.9 s *2*	(5+)	Q_{EC} (7760 *200*), Q_α 6926 *5*	α(88% *4*), EC+β+(12% *4*)	575, 559, 629, 161, 283
^{206}Fr(531)	0.7 s *1*			α(0.3% *1*)	391
^{206}Ra	0.24 s *2*	0+	Q_{EC} (4930 *240*), Q_α 7416 *5*	α(~100%)	
^{207}Hg	2.9 m *2*	(9/2+)	Q_{β^-} 4820 *150*	β–(100%)	351, 997, 1637, 1756, 1564
^{207}Tl	4.77 m *2*	1/2+	Q_{β^-} 1423 *6*	β–(100%)	898, 570, 328
^{207}Tl(1348.1)	1.33 s *11*	11/2-		IT(100%), β–(<0.1%)	997, 351, 1348
^{207}Pb	22.1% *1*	1/2-	Δ –22467 *3*		
^{207}Pb(1633.368)	0.805 s *10*	13/2+		IT(100%)	570, 1064
^{207}Bi	31.55 y *5*	9/2-	Q_{EC} 2398.2 *21*, Q_α 3281.5 *22*	EC+β+(100%)	570, 1064, 1770, 1442, 898
^{207}Po	5.80 h *2*	5/2-	Q_{EC} 2909 *6*, Q_α 5215.9 *10*	EC+β+(99.979% *2*), α(0.021% *2*)	992, 743, 912, 406, 1148
^{207}Po(1383.2)	2.8 s *1*	19/2-		IT(100%)	814, 268, 301
^{207}At	1.80 h *4*	9/2-	Q_{EC} 3910 *22*, Q_α 5873 *3*	EC+β+(91.4% *10*), α(8.6% *10*)	814, 588, 301, 467, 675
^{207}Rn	9.25 m *17*	5/2-	Q_{EC} 4612 *63*, Q_α 6251.0 *17*	EC+β+(79% *3*), α(21% *3*)	345, 747, 403, 674.0, 674.0
^{207}Fr	14.8 s *1*	9/2-	Q_{EC} 5710 *120*, Q_α 6901 *49*	α(95% *2*), EC+β+(5% *2*)	665
^{207}Ra	1.3 s *2*	(5/2,3/2)-	Q_{EC} (6400 *400*), Q_α 7273 *50*	α(~90%), EC+β+(~10%)	
^{207}Ra(470)	55 ms *10*	(13/2+)		IT(85% *syst*), α(15% *syst*), EC+β+(~0.55%)	
^{207}Ac	22 ms$^{+40}_{-9}$	(9/2-)	Q_{EC} (7800 *400*), Q_α 7864 *50*	α(~100%)	
^{208}Hg	42 m$^{+23}_{-12}$	0+	Q_{β^-}(3700 *300*)	β–(100%)	474
^{208}Tl	3.053 m *4*	5(+)	Q_{β^-} 5001.0 *17*	β–(100%)	2615, 583, 511, 861, 277
^{208}Pb	52.4% *1*	0+	Δ –21764 *3*		
^{208}Bi	3.68×10^5 y *4*	(5)+	Q_{EC} 2879.1 *20*, Q_α 3050.5 *20*	EC+β+(100%)	2615
^{208}Bi(1571.1)	2.58 ms *4*	(10)-		IT(100%)	920, 511, 651, 140, 447
^{208}Po	2.898 y *2*	0+	Q_{EC} 1401.3 *24*, Q_α 5215.5 *13*	α(99.9982% *2*), EC+β+(0.0018% *2*)	292, 570, 602, 862, 539
^{208}At	1.63 h *3*	6+	Q_{EC} 4985 *26*, Q_α 5751.1 *22*	EC+β+(99.45% *6*), α(0.55% *6*)	687, 660, 178, 845, 1028
^{208}Rn	24.35 m *14*	0+	Q_{EC} 2840 *29*, Q_α 6260.5 *17*	α(62% *7*), EC+β+(38% *7*)	427, 251, 350, 287, 952
^{208}Fr	59.1 s *3*	7+	Q_{EC} 6989 *79*, Q_α 6771 *50*	α(90% *4*), EC+β+(10% *4*)	636, 779, 325, 553, 335
^{208}Ra	1.3 s *2*	0+	Q_{EC} (4320 *160*), Q_α 7273 *5*	α(95% *syst*), EC+β+(5% *syst*)	
^{208}Ac	95 ms$^{+24}_{-16}$	(3+)	Q_{EC} (9040 *250*), Q_α 7721 *15*	α(~99%)	
^{208}Ac(506)	25 ms$^{+9}_{-5}$	(10-)		α(~90%)	
^{209}Tl	2.20 m *7*	(1/2+)	Q_{β^-} 3982 *10*, Q_α (2900 *300*)	β–(100%)	1567, 465, 117, 920, 1239
^{209}Pb	3.253 h *14*	9/2+	Q_{β^-} 644.2 *11*, Q_α 2250 *4*	β–(100%)	
^{209}Bi	100%	9/2-	Δ –18273 *3*, Q_α 3137.0 *8*		
^{209}Po	102 y *5*	1/2-	Q_{EC} 1893.3 *16*, Q_α 4979.2 *14*	α(99.52% *4*), EC+β+(0.48% *4*)	260, 263
^{209}At	5.41 h *5*	9/2-	Q_{EC} 3486 *8*, Q_α 5757.3 *20*	EC+β+(95.9% *5*), α(4.1% *5*)	545, 782, 790, 195, 239
^{209}Rn	28.5 m *10*	5/2-	Q_{EC} 3929 *28*, Q_α 6155.3 *20*	EC+β+(83% *2*), α(17% *2*)	143, 154, 385, 230, 11
^{209}Fr	50.0 s *3*	9/2-	Q_{EC} 5159 *43*, Q_α 6777 *4*	α(89% *3*), EC+β+(11% *3*)	
^{209}Ra	4.6 s *2*	5/2-	Q_{EC} (5620 *130*), Q_α 7147 *50*	α(~90%), EC+β+(~10%)	
^{209}Ac	0.10 s *5*	(9/2-)	Q_{EC} (7100 *300*), Q_α 7733 *50*	α(~99%), EC+β+(~1%)	
^{210}Tl	1.30 m *3*	(5+)	Q_{β^-} 5489 *11*	β–(100%), β–n(0.007%$^{+7}_{-4}$)	800, 298, 1316, 1210, 1070
^{210}Pb	22.3 y *2*	0+	Q_{β^-} 63.5 *5*, Q_α 3792 *20*	β–(100%), α(1.9×10^{-6}% *4*)	47
^{210}Bi	5.013 d *5*	1-	Q_{β^-} 1162.1 *8*, Q_α 5036.0 *8*	β–(100%), α(1.32×10^{-4}% *10*)	305, 266
^{210}Bi(271.31)	3.04×10^6 y *6*	9-		α(100%)	266, 305, 649, 345, 330
^{210}Po	138.376 d *2*	0+	Q_α 5407.46 *7*	α(100%)	803
^{210}At	8.1 h *4*	(5)+	Q_{EC} 3981 *8*, Q_α 5631.1 *10*	EC+β+(99.825% *20*), α(0.175% *20*)	83, 106, 167, 141, 1600
^{210}Rn	2.4 h *1*	0+	Q_{EC} 2374 *12*, Q_α 6158.5 *22*	α(96% *1*), EC+β+(4% *1*)	458, 649, 571, 73, 761
^{210}Fr	3.18 m *6*	6+	Q_{EC} 6258 *24*, Q_α 6703 *47*	α(60% *30*), EC+β+(40% *30*)	644, 818, 203, 901, 256
^{210}Ra	3.7 s *2*	0+	Q_{EC} (3771 *96*), Q_α 7157 *5*	α(~96%), EC+β+(~4%)	
^{210}Ac(x)	0.35 s *5*		Q_{EC} (8210 *210*), Q_α 7607 *50*	α(~96%), EC+β+(~4%)	
^{210}Th	9 ms$^{+17}_{-4}$	0+	Q_{EC} (5380 *240*), Q_α 8053 *17*	α(~100%)	
^{211}Pb	36.1 m *2*	9/2+	Q_{β^-} 1372 *6*, Q_α 3310 *150*	β–(100%)	405, 832, 427, 767, 705
^{211}Bi	2.14 m *2*	9/2-	Q_{β^-} 579 *6*, Q_α 6750.5 *5*	α(99.724% *4*), β–(0.276% *4*)	351

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{211}Po	0.516 s *3*	9/2+	Q_α 7594.5 *5*	α(100%)	898, 570, 328
^{211}Po(1462)	25.2 s *6*	(25/2+)		α(99.984% *4*), IT(0.016% *4*)	898, 1064, 570
^{211}At	7.214 h *7*	9/2-	Q_{EC} 786.1 *25*, Q_α 5982.4 *13*	EC(58.20% *8*), α(41.80% *8*)	687, 670, 743
^{211}Rn	14.6 h *2*	1/2-	Q_{EC} 2892 *7*, Q_α 5965.2 *14*	EC(72.6% *17*), α(27.4% *17*)	69, 168, 236
^{211}Fr	3.10 m *2*	9/2-	Q_{EC} 4605 *21*, Q_α 6660 *5*	α(>80%), EC(<20%)	540, 918, 281, 983, 440
^{211}Ra	13 s *2*	5/2(-)	Q_{EC} 4997 *64*, Q_α 7046 *5*	α(>93%), EC(<7%)	
^{211}Ac	0.25 s *5*		Q_{EC} 6290 *130*, Q_α 7625 *50*	α(~100%)	
^{211}Th	37 ms^{+28}_{-11}		Q_{EC} (6700 *400*), Q_α 7943 *50*	α, EC	
^{212}Pb	10.64 h *1*	0+	Q_{β^-} 573.8 *20*, Q_α (3100 *300*)	β–(100%)	239, 300, 115, 415, 177
^{212}Bi	60.55 m *6*	1(-)	Q_{β^-} 2254.0 *17*, Q_α 6207.14 *4*	β–(64.06% *6*), α(35.94% *6*), β–α(0.023%)	727, 1621, 785, 1079, 40
^{212}Bi(250)	25.0 m *2*	(9-)		α(67% *1*), β–(33% *1*), β–α(30% *1*)	277, 121, 223, 405, 727
^{212}Bi(1910)	7.0 m *3*			β–(~100%)	
^{212}Po	0.299 µs *2*	0+	Q_α 8954.13 *11*	α(100%)	
^{212}Po(2922)	45.1 s *6*	(18+)		α(99.93% *2*), IT(0.07% *2*)	2615, 583
^{212}At	0.314 s *2*	(1-)	Q_{EC} 1754 *3*, Q_{β^-} 43 *4*, Q_α 7828.9 *20*	α(100%), β–(<2×10^{-6}%), EC+β+(<3×10^{-2}%)	
^{212}At(222)	0.119 s *3*	(9-)		α(>99%), IT(<1%)	64
^{212}Rn	23.9 m *12*	0+	Q_α 6385 *3*	α(100%)	
^{212}Fr	20.0 m *6*	5+	Q_{EC} 5129 *26*, Q_α 6529.0 *18*	EC+β+(57% *2*), α(43% *2*)	124, 84, 72, 40, 148
^{212}Ra	13.0 s *2*	0+	Q_{EC} 3343 *29*, Q_α 7031.9 *18*	α(~90%), EC+β+(~10%)	
^{212}Ac	0.93 s *5*		Q_{EC} 7478 *94*, Q_α 7521 *50*	α(~97%), EC+β+(~3%)	
^{212}Th	30 ms^{+20}_{-10}	0+	Q_{EC} (4760 *170*), Q_α 7952 *10*	α(100%), EC+β+(~0.3%)	
^{213}Pb	10.2 m *3*	(9/2+)	Q_{β^-} (1980 *100*)	β–(100%)	
^{213}Bi	45.59 m *6*	9/2-	Q_{β^-} 1427 *7*, Q_α 5982 *6*	β–(97.91% *3*), α(2.09% *3*)	1100, 1119, 807, 440, 293
^{213}Po	4.2 µs *8*	9/2+	Q_α 8537 *3*	α(100%)	779
^{213}At	125 ns *6*	9/2-	Q_{EC} 73 *6*, Q_α 9254 *5*	α(100%)	
^{213}Rn	25.0 ms *2*	(9/2+)	Q_{EC} 882 *8*, Q_α 8243 *6*	α(100%)	
^{213}Fr	34.6 s *3*	9/2-	Q_{EC} 2148 *10*, Q_α 6905.1 *18*	α(99.45% *3*), EC+β+(0.55% *3*)	
^{213}Ra	2.74 m *6*	1/2-	Q_{EC} 3885 *29*, Q_α 6861 *4*	α(80% *5*), EC+β+(20% *5*)	110, 215, 105
^{213}Ra(1770)	2.1 ms *1*			IT(~99%), α(~1%)	215, 110, 105
^{213}Ac	0.80 s *5*		Q_{EC} 5801 *66*, Q_α 7503 *50*	α(<100%)	
^{213}Th	140 ms *25*		Q_{EC} (5950 *150*), Q_α 7838 *50*	α(<100%)	
^{213}Pa	5.3 ms^{+40}_{-16}		Q_{EC} (7700 *300*), Q_α 8394 *50*	α	
^{214}Pb	26.8 m *9*	0+	Q_{β^-} 1024 *11*	β–(100%)	352, 295, 242, 53, 786
^{214}Bi	19.9 m *4*	1-	Q_{β^-} 3272 *11*, Q_α 5616.8 *10*	β–(99.979% *1*), α(0.021% *1*)	2204, 1764, 1238, 1120, 609
^{214}Po	164.3 µs *20*	0+	Q_α 7833.46 *6*	α(100%)	800, 298
^{214}At	558 ns *10*	1-	Q_{EC} 1090 *4*, Q_{β^-} 941 *10*, Q_α 8987 *4*	α(100%)	
^{214}At(59)	265 ns *30*			α(<100%)	
^{214}At(231)	760 ns *15*	9-		α(<100%)	
^{214}Rn	0.27 µs *2*	0+	Q_α 9208 *9*	α(100%)	
^{214}Rn(1442.7)	0.69 ns *21*	6+		IT(<100%), α	
^{214}Rn(1625.1)	6.5 ns *30*	8+		IT(~90%), α(~10%)	
^{214}Fr	5.0 ms *2*	(1-)	Q_{EC} 3361 *13*, Q_α 8589 *4*	α(100%)	
^{214}Fr(122)	3.35 ms *5*	(8-)		α(100%)	
^{214}Ra	2.46 s *3*	0+	Q_{EC} 1059 *14*, Q_α 7273 *4*	α(99.941% *4*), EC(0.059% *4*)	
^{214}Ac	8.2 s *2*		Q_{EC} 6336 *55*, Q_α 7351 *50*	α(>89% *3*), EC(<11% *3*)	
^{214}Th	100 ms *25*	0+	Q_{EC} (4250 *110*), Q_α 7826 *7*	α(100%)	
^{214}Pa	17 ms *3*		Q_{EC} (8650 *220*), Q_α 8271 *50*	α	
^{215}Bi	7.6 m *2*		Q_{β^-} 2252 *96*	β–(100%)	294, 271, 518, 833, 564
^{215}Po	1.781 ms *4*	9/2+	Q_{β^-} 720 *7*, Q_α 7526.4 *8*	α(99.99977% *2*), β–(2.3×10^{-4}% *2*)	439
^{215}At	0.10 ms *2*	9/2-	Q_α 8178 *4*	α(100%)	405
^{215}Rn	2.30 µs *10*	9/2+	Q_{EC} 82 *10*, Q_α 8839 *8*	α(100%)	
^{215}Fr	86 ns *5*	9/2-	Q_{EC} 1487 *10*, Q_α 9540 *7*	α(100%)	
^{215}Fr(1573.1)	3.5 ns *14*	(23/2)-		α	
^{215}Ra	1.59 ms *9*	(9/2+)	Q_{EC} 2215 *10*, Q_α 8864 *4*	α(100%)	
^{215}Ac	0.17 s *1*	9/2-	Q_{EC} 3490 *55*, Q_α 7748 *50*	α(99.91% *2*), EC+β+(0.09% *2*)	
^{215}Th	1.2 s *2*	(1/2-)	Q_{EC} 4914 *81*, Q_α 7666 *6*	α(100%)	
^{215}Pa	14 ms^{+20}_{-3}		Q_{EC} 6870 *140*, Q_α 8240 *50*	α(100%)	
^{216}Bi	3.6 m *4*	(1-)	Q_{β^-} (4000 *100*)	β–(~100%)	550, 419
^{216}Po	0.145 s *2*	0+	Q_α 6906.5 *5*	α(100%)	805
^{216}At	0.30 ms *3*	1-	Q_{EC} 469 *4*, Q_{β^-} 2003 *8*, Q_α 7949 *3*	α(100%), EC(<3×10^{-7}%), β–(<6×10^{-3}%)	
^{216}At(413)	0.1 ms *syst*	(9-)		α(100%)	
^{216}Rn	45 µs *5*	0+	Q_α 8200 *7*	α(100%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{216}Fr	0.70 μs *2*	(1-)	Q_{EC} 2729 *14*, Q_α 9175 *12*	α(100%), EC(<2×10^{-7}% *syst*)	
^{216}Ra	182 ns *10*	0+	Q_{EC} 308 *15*, Q_α 9526 *8*	α(100%), EC(<1×10^{-8}%)	
^{216}Ac	~0.33 ms	(1-)	Q_{EC} 4846 *28*, Q_α 9243 *8*	α(100%)	
^{216}Ac(37)	0.33 ms *2*	(9-)		α(100%)	
^{216}Th	0.028 s *2*	0+	Q_{EC} 2170 *31*, Q_α 8071 *8*	α(100%), EC+β+(~0.01% *syst*)	
^{216}Th(2028)	180 μs *40*	(8+,11-)		IT(~97%), α(~3%)	
^{216}Pa	0.20 s *4*		Q_{EC} 7510 *110*, Q_α 8099 *50*	EC(~2% *syst*), α(~98% *syst*)	
^{217}Po	<10 s		Q_{β^-}(1440 *100*), Q_α 6660 *4*	α(>95%), β–(<5%)	
^{217}At	32.3 ms *4*	9/2-	Q_{β^-}741 *8*, Q_α 7201.9 *14*	α(99.988% *4*), β–(0.012% *4*)	259, 593, 334, 455, 375
^{217}Rn	0.54 ms *5*	9/2+	Q_α 7889 *3*	α(100%)	
^{217}Fr	22 μs *5*	9/2-	Q_{EC} 654 *8*, Q_α 8469 *4*	α(100%)	
^{217}Ra	1.6 μs *2*	(9/2+)	Q_{EC} 1574 *11*, Q_α 9161 *6*	α(100%)	
^{217}Ac	69 ns *4*	9/2-	Q_{EC} 2819 *16*, Q_α 9832 *10*	α(100%), EC+β+(<2%)	
^{217}Ac(2013)	740 ns *40*	(29/2)+		IT(95.7% *10*), α(4.3% *10*)	
^{217}Th	0.252 ms *7*	(9/2+)	Q_{EC} 3478 *32*, Q_α 9424 *9*	α(100%)	
^{217}Pa	4.9 ms *6*		Q_{EC} 4865 *83*, Q_α 8487 *50*	α(100%)	
^{217}Pa(1854)	1.6 ms *10*			α(<100%)	
^{218}Po	3.10 m *1*	0+	Q_{β^-}265 *12*, Q_α 6114.68 *9*	α(99.980% *2*), β–(0.020% *2*)	
^{218}At	1.5 s *3*		Q_{β^-}2883 *12*, Q_α 6874 *3*	α(99.9%), β–(0.1%)	
^{218}Rn	35 ms *5*	0+	Q_α 7263.0 *19*	α(100%)	609
^{218}Fr	1.0 ms *6*	1-	Q_{EC} 1842 *5*, Q_{β^-}409 *12* Q_α 8014.3 *20*	α(100%)	
^{218}Fr(86)	22.0 ms *5*			α(<100%), IT	
^{218}Ra	25.6 μs *11*	0+	Q_α 8546 *6*	α(100%)	
^{218}Ac	1.08 μs *9*	(1-)	Q_{EC} 4193 *52*, Q_α 9377 *50*	α(100%)	
^{218}Th	109 ns *13*	0+	Q_{EC} 1530 *53*, Q_α 9849 *9*	α(100%)	
^{218}Pa	0.12 ms$^{+4}_{-2}$		Q_{EC} 6278 *75*, Q_α 9791 *50*	α(100%)	
^{218}U	1.5 ms$^{+73}_{-7}$	0+	Q_{EC} (3240 *120*), Q_α 8786 *25*	α(100%)	
^{219}At	56 s *3*		Q_{β^-}1697 *81*, Q_α 6391 *51*	α(~97%), β–(~3%)	
^{219}Rn	3.96 s *1*	5/2+	Q_{β^-}218 *7*, Q_α 6946.1 *3*	α(100%)	271, 402, 131, 294, 518
^{219}Fr	20 ms *2*	9/2-	Q_α 7448.5 *18*	α(100%)	530, 493, 352, 189, 163
^{219}Ra	10 ms *3*	(7/2)+	Q_{EC} 771 *11*, Q_α 8138 *3*	α(100%)	805, 592, 489, 316, 291
^{219}Ac	11.8 μs *15*	9/2-	Q_{EC} 2176 *51*, Q_α 8827 *50*	α(100%), EC+β+(~1×10^{-6}%)	
^{219}Th	1.05 μs *3*		Q_{EC} 2903 *71*, Q_α 9514 *50*	α(100%), EC+β+(~1×10^{-7}%)	
^{219}Pa	53 ns *10*	9/2-	Q_{EC} 4060 *89*, Q_α 10085 *50*	α(100%), EC+β+(~5×10^{-9}%)	
^{219}U	42 μs$^{+34}_{-1}$		Q_{EC} 4690 *110*, Q_α 9860 *50*	α	
^{220}At	3.71 m *4*	3	Q_{β^-}(3650 *110*), Q_α 6053 *50*	α(8% *2*), β–(92% *2*)	241, 293, 422, 698, 646
^{220}Rn	55.6 s *1*	0+	Q_α 6404.67 *10*	α(100%)	550
^{220}Fr	27.4 s *3*	1+	Q_{EC} 865 *4*, Q_{β^-}1209 *11* Q_α 6800.7 *19*	α(99.65% *5*), β–(0.35% *5*)	413, 235, 178, 45, 161
^{220}Ra	18 ms *2*	0+	Q_α 7595 *7*	α(100%)	462
^{220}Ac	26.4 ms *2*	(3-)	Q_{EC} 3481 *52*, Q_α 8347 *50*	α(100%)	133, 93, 343, 160, 95
^{220}Th	9.7 μs *6*	0+	Q_{EC} 914 *56*, Q_α 8953 *20*	α(100%), EC(2×10^{-7}% *syst*)	
^{220}Pa(0+x)	0.78 μs *16*		Q_{EC} 5723 *61*, Q_α 9829 *50*	α(100%), EC+β+(3×10^{-7}% *syst*)	
^{220}U			Q_{EC} (2640 *210*), Q_α (10300 *200*)		
^{221}At	2.3 m *2*		Q_{β^-}(2500 *300*)	β–(100%)	
^{221}Rn	25 m *2*	7/2(+)	Q_{β^-}(1130 *100*), Q_α 6146 *3*	β–(78% *1*), α(22% *1*)	217, 186, 150, 112, 108
^{221}Fr	4.9 m *2*	5/2-	Q_{β^-}315 *9*, Q_α 6457.9 *14*	α(100%), c(8.8×10^{-11}% *11*)	218, 411, 100, 150, 171
^{221}Ra	28 s *2*	5/2+	Q_α 6884 *5*	α(100%), c(1.2×10^{-10}% *9*)	149, 93, 174, 320, 293
^{221}Ac	52 ms *2*	(3/2-)	Q_{EC} 1554 *51*, Q_α 7784 *50*	α(100%)	
^{221}Th	1.68 ms *6*	(7/2+)	Q_{EC} 2418 *51*, Q_α 8628 *4*	α(100%)	
^{221}Pa	5.9 μs *17*	9/2-	Q_{EC} 3439 *53*, Q_α 9248 *50*	α(100%)	
^{221}U			Q_{EC} (4180 *120*), Q_α (9950 *100*)		
^{222}At	54 s *10*		Q_{β^-}(4400 *300*)	β–(100%)	
^{222}Rn	3.8235 d *3*	0+	Q_{β^-}25 *21*, Q_α 5590.3 *3*	α(100%)	511
^{222}Fr	14.2 m *3*	2-	Q_{β^-}2033 *21*, Q_α 5830 *24*	β–(100%)	206, 111, 242, 131, 190
^{222}Ra	38.0 s *5*	0+	Q_α 6681 *4*	α(100%), ^{14}C(3.0×10^{-8}% *10*)	324, 329, 473, 840, 516
^{222}Ac	5.0 s *5*	1-	Q_{EC} 2298 *7*, Q_α 7137.4 *20*	α(99% *1*), EC+β+(1% *1*)	
^{222}Ac(0+x)	63 s *3*			α(>88%), IT(<10%), EC+β+(<2%)	
^{222}Th	2.8 ms *3*	0+	Q_{EC} 582 *14*, Q_α 8129 *6*	α(100%)	
^{222}Pa	2.9 ms$^{+6}_{-4}$		Q_{EC} (4910 *74*), Q_α (8847 *52*)	α(100%)	
^{222}U	1.0 μs$^{+10}_{-4}$	0+	Q_{EC} (2180 *120*), Q_α (9500 *100*)	α(100%)	
^{223}At	50 s *7*		Q_{β^-}(3300 *500*)	β–(100%), α(0.008% *syst*)	
^{223}Rn	23.2 m *4*	7/2	Q_{β^-}(1900 *300*)	β–(100%), α(0.0004% *syst*)	592, 635, 416, 654, 649
^{223}Fr	21.8 m *4*	3/2(-)	Q_{β^-}1149.1 *9*, Q_α 5432 *81*	β–(99.994%), α(0.006%)	50.1, 80, 235, 49.9, 205
^{223}Ra	11.435 d *4*	3/2+	Q_α 5979.3 *3*	α(100%), ^{14}C(6.4×10^{-8}% *4*)	269, 154, 324, 144, 338
^{223}Ac	2.10 m *5*	(5/2-)	Q_{EC} 586 *7*, Q_α 6783.1 *10*	α(99%), EC(1%)	99, 191, 84, 434, 93

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{223}Th	0.60 s *2*	(5/2)+	Q_{EC} 1555 *12*, Q_{α} 7567 *4*	α(100%)	152, 97, 88, 75, 140
^{223}Pa	6.5 ms *10*		Q_{EC} 2952 *72*, Q_{α} 8342 *50*	α(100%), EC+β+(<1.0×10^{-3}%)	
^{223}U	18 μs^{+10}_{-5}		Q_{EC} 3500 *100*, Q_{α} 8941 *50*	α	
^{224}Rn	107 m *3*	0+	Q_{β^-}(800 *300*)	β–(100%)	261, 266, 202, 328, 257
^{224}Fr	3.33 m *10*	1-	Q_{β^-}2826 *49*, Q_{α}(4970 *120*)	β–(100%)	216, 132, 837, 1341, 1378
^{224}Ra	3.66 d *4*	0+	Q_{α} 5788.87 *15*	α(100%), ^{14}C(4.3×10^{-9}% *12*)	241, 293, 646, 422, 404
^{224}Ac	2.78 h *17*	0-	Q_{EC} 1403 *4*, Q_{β^-}232 *13* Q_{α} 6326.9 *7*	EC(90.9%$^{+14}_{-20}$), α(9.1%$^{+20}_{-14}$), β–(<1.6% *syst*)	157, 141, 144, 261, 84
^{224}Th	1.05 s *2*	0+	Q_{α} 7304 *7*	α(100%)	178, 413, 235, 296
^{224}Pa	0.79 s *6*		Q_{EC} 3871 *53*, Q_{α} 7694 *4*	α(100%)	195, 41, 153, 165, 184
^{224}U	0.9 ms *3*	0+	Q_{EC} 1840 *58*, Q_{α} 8620 *12*	α(100%)	
^{225}Rn	4.5 m *3*	7/2-	Q_{β^-}(2600 *300*)	β–(100%)	207, 179, 170, 116, 99
^{225}Fr	4.0 m *2*	3/2-	Q_{β^-}1865 *10*, Q_{α}(4500 *300*)	β–(100%)	182, 32, 225, 75, 200
^{225}Ra	14.9 d *2*	1/2+	Q_{β^-}358 *7*, Q_{α}(5170 *100*)	β–(100%)	40
^{225}Ac	10.0 d *1*	(3/2-)	Q_{α} 5935.2 *14*	α(100%), ^{14}C(6.0×10^{-10}% *13*)	99.9, 150, 99.6, 188, 63
^{225}Th	8.72 m *4*	(3/2)+	Q_{EC} 671 *10*, Q_{α} 6921.4 *21*	α(~90%), EC(~10%)	321, 246, 359, 306, 53
^{225}Pa(0+x)	1.7 s *2*		Q_{EC} 2025 *71*, Q_{α} 7393 *50*	α(100%)	
^{225}U	95 ms *15*		Q_{EC} 3045 *87*, Q_{α} 8020 *50*	α(100%)	
^{225}Np	6 ms^{+4}_{-2}		Q_{EC} 4206 *88*, Q_{α} 8787 *50*	α	
^{226}Rn	7.4 m *1*	0+	Q_{β^-}(1400 *400*)	β–(100%)	
^{226}Fr	49 s *1*	1-	Q_{β^-}3671 *91*, Q_{α}(4100 *300*)	β–(100%)	253.7, 186, 253.9, 1323, 1009
^{226}Ra	1600 y *7*	0+	Q_{α} 4870.63 *25*	α(100%), ^{14}C(3.2×10^{-9}% *16*)	186, 262, 601, 415, 449
^{226}Ac	29.37 h *12*	(1)	Q_{EC} 640 *3*, Q_{β^-}1117 *5* Q_{α} 5536 *21*	α(6×10^{-3}% *2*), β–(83% *3*), EC(17% *3*)	254, 186, 68
^{226}Th	30.57 m *10*	0+	Q_{α} 6451.2 *10*	α(100%)	111, 242, 131, 206, 190
^{226}Pa	1.8 m *2*		Q_{EC} 2834 *12*, Q_{α} 6987 *10*	α(74% *5*), EC+β+(26% *5*)	
^{226}U	200 ms *50*	0+	Q_{EC} 1311 *22*, Q_{α} 7715 *14*	α(100%)	
^{226}Np	35 ms *10*		Q_{EC} (5393 *90*), Q_{α} 8197 *50*	α(100%)	
^{227}Rn	22.5 s *7*		Q_{β^-}(3300 *400*)	β–(100%)	162, 739, 686, 805, 133
^{227}Fr	2.47 m *3*	1/2+	Q_{β^-}2480 *96*, Q_{α}(3600 *400*)	β–(100%)	90, 586, 64, 434, 102
^{227}Ra	42.2 m *5*	3/2+	Q_{β^-}1326.2 *24*, Q_{α}(4500 *300*)	β–(100%)	27, 300, 303, 284, 330
^{227}Ac	21.773 y *3*	3/2-	Q_{β^-}44.8 *8*, Q_{α}5042.19 *14*	β–(98.620% *4*), α(1.380% *4*)	100, 69, 160, 147, 122
^{227}Th	18.72 d *2*	(1/2+)	Q_{α} 6146.43 *15*	α(100%)	236, 50, 256, 330, 300
^{227}Pa	38.3 m *3*	(5/2-)	Q_{EC} 1019 *8*, Q_{α} 6580.0 *21*	α(85% *2*), EC(15% *2*)	65, 110, 84.8, 68, 84.8
^{227}U	1.1 m *1*	(3/2+)	Q_{EC} 2186 *18*, Q_{α} 7211 *14*	α(100%), EC+β+(<0.001%)	247, 310, 259, 209, 158
^{227}Np	0.51 s *6*		Q_{EC} 3557 *74*, Q_{α} 7816 *14*	α(100%), EC+β+(~0.05%)	
^{228}Rn	65 s *2*	0+	Q_{β^-}(2200 *500*)	β–(100%)	125, 63, 156, 112, 170
^{228}Fr	38 s *1*	2-	Q_{β^-}(4340 *200*)	β–(100%)	473.7, 474.0, 410, 141, 949
^{228}Ra	5.75 y *3*	0+	Q_{β^-}45.9 *9*, Q_{α}(4100 *300*)	β–(100%)	14, 16.2, 13, 15.5, 26
^{228}Ac	6.15 h *2*	3+	Q_{β^-}2127 *3*, Q_{α} 4821 *49*	β–(100%)	911, 969, 338, 965, 463
^{228}Th	1.9116 y *16*	0+	Q_{α} 5520.12 *22*	α(100%), ^{20}O(1.13×10^{-11}% *22*)	84, 216, 132, 166, 206
^{228}Pa	22 h *1*	3+	Q_{EC} 2148 *4*, Q_{α} 6264.5 *15*	EC+β+(98.0% *2*), α(2.0% *2*)	308, 30, 43, 317, 230
^{228}U	9.1 m *2*	0+	Q_{EC} 307 *16*, Q_{α} 6804 *10*	EC(<5%), α(>95%)	98, 246, 186, 153
^{228}Np	61.4 s *14*		Q_{EC} (4480 *200*), Q_{α}(7420 *200*)	EC(60% *7*), α(40% *7*), ECSF)	
^{228}Pu	<4 ms	0+	Q_{EC} (2370 *200*), Q_{α} 7950 *20*	α(100%)	
^{229}Fr	50 s *20*		Q_{β^-}(3400 *400*)	β–(100%)	
^{229}Ra	4.0 m *2*	5/2(+)	Q_{β^-}1760 *40*, Q_{α}(3500 *300*)	β–(100%)	
^{229}Ac	62.7 m *5*	(3/2+)	Q_{β^-}1095 *47*, Q_{α} 4397 *48*	β–(100%)	165, 569, 262, 146, 135
^{229}Th	7340 y *160*	5/2+	Q_{α} 5167.6 *10*	α(100%)	194, 211, 86.4, 86.3, 156
^{229}Pa	1.50 d *5*	(5/2+)	Q_{EC} 310 *9*, Q_{α} 5836 *5*	EC(99.52% *5*), α(0.48% *5*)	40, 65, 75, 116, 121
^{229}U	58 m *3*	(3/2+)	Q_{EC} 1311 *11*, Q_{α} 6475 *3*	EC+β+(~80%), α(~20%)	123, 88, 199, 248, 241
^{229}Np	4.0 m *2*		Q_{EC} 2562 *87*, Q_{α} 7013 *50*	α(>50%), EC(<50%)	
^{229}Pu			Q_{EC} 3630 *110*, Q_{α} 7593 *50*	α	
^{230}Fr	19.1 s *5*		Q_{β^-}(5100 *400*)	β–(100%)	711, 129, 728, 677, 735
^{230}Ra	93 m *2*	0+	Q_{β^-}990 *110*, Q_{α}(3300 *400*)	β–(100%)	72, 63, 203, 470, 479
^{230}Ac	122 s *3*	(1+)	Q_{β^-}2700 *100*, Q_{α} 3800 *140*	β–(100%)	455, 508, 1244, 1348, 1950
^{230}Th	7.538×10^4 y *30*	0+	Q_{α} 4770.0 *15*	α(100%), ^{24}Ne(5.6×10^{-11}% *10*), SF(<3.8×10^{-12}%)	68, 144, 253.7, 186, 253.9
^{230}Pa	17.4 d *5*	(2-)	Q_{EC} 1310 *3*, Q_{β^-}564 *5* Q_{α} 5439.4 *7*	EC+β+(91.6% *13*), β–(8.4% *13*), α(0.0032% *1*)	952, 918, 455, 899, 444
^{230}U	20.8 d	0+	Q_{α} 5992.7 *7*	α(100%), SF(<1.4×10^{-10}%)	72, 154, 230, 158, 235
^{230}Np	4.6 m *3*		Q_{EC} 3619 *51*, Q_{α} 6778 *50*	EC+β+(<97%), α(>3%)	
^{230}Pu		0+	Q_{EC} 1707 *57*, Q_{α} 7175 *15*	α	
^{231}Fr	17.5 s *8*		Q_{β^-}(3900 *600*)	β–(100%)	433, 454, 96

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{231}Ra	103 s *3*	(7/2-,1/2+)	Q_{β^-}(2500 *300*), Q_α(3000 *300*)	β–(100%)	410, 205, 469, 456, 55
^{231}Ac	7.5 m *1*	(1/2+)	Q_{β^-}2100 *100*, Q_α3830 *140*	β–(100%)	282, 307, 221, 186, 369
^{231}Th	25.52 h *1*	5/2+	Q_{β^-}389.5 *17*, Q_α4213.3 *15*	β–(100%), α(~1×10^{-8}%)	26, 84, 90, 81, 27
^{231}Pa	32760 y *110*	3/2-	Q_α5149.9 *8*	α(100%), SF(<1.6×10^{-11}%)	27, 300, 303, 284, 330
^{231}U	4.2 d *1*	(5/2-)	Q_{EC}382 *3*, Q_α5577 *3*	EC(100%), α(~0.0055%)	26, 84, 218, 59, 236
^{231}Np	48.8 m *2*	(5/2)	Q_{EC}1811 *51*, Q_α6368 *50*	EC(98% *1*), α(2% *1*)	371, 348, 264, 485, 738
^{231}Pu			Q_{EC}(2820 *110*), Q_α(7000 *100*)		
^{231}Am			Q_{EC}(4000 *300*), Q_α(7500 *300*)		
^{232}Fr	5 s *1*		Q_{β^-}(5600 *700*)	β–(100%)	
^{232}Ra	250 s *50*	0+	Q_{β^-}(1600 *400*), Q_α(2800 *300*)	β–(100%)	471, 98, 479, 105, 373
^{232}Ac	119 s *5*	(1+)	Q_{β^-}3700 *100*, Q_α(3440 *220*)	β–(100%)	665, 1899, 1959, 1948, 612
^{232}Th	1.405×10^{10} y *6* 100%	0+	Δ35443.7 *20*, Q_α4082.8 *14*	α(100%), SF(<1.8×10^{-9}%)	64, 141
^{232}Pa	1.31 d *2*	(2-)	Q_{EC}495 *8*, Q_{β^-}1337 *7* Q_α4624 *8*	β–(99.997% *1*), EC(0.003% *1*)	969, 894, 150, 454, 819
^{232}U	68.9 y *4*	0+	Q_α5413.55 *14*	α(100%), ^{24}Ne(9×10^{-11}% *7*)	58, 129, 270, 328, 332
^{232}Np	14.7 m *3*	(4+)	Q_{EC}(2750 *100*), Q_α(6020 *100*)	EC+β+(100%)	327, 819, 867, 864, 282
^{232}Pu	34.1 m *7*	0+	Q_{EC}(1010 *100*), Q_α6716 *10*	EC(80% *syst*), α(20% *syst*)	
^{232}Am	79 s *2*		Q_{EC}(5000 *300*), Q_α(7300 *400*)	EC(~98%), α(~2%), ECSF%)	
^{233}Ra	30 s *5*		Q_{β^-}(3200 *600*)	β–(100%)	
^{233}Ac	145 s *10*	(1/2+)	Q_{β^-}(2800 *300*), Q_α(3280 *200*)	β–(100%)	523, 540, 17
^{233}Th	22.3 m *1*	1/2+	Q_{β^-}1245.1 *14*, Q_α3869 *62*	β–(100%)	86, 29, 459, 95, 670
^{233}Pa	26.967 d *2*	3/2-	Q_{β^-}570.1 *20*, Q_α4384 *47*	β–(100%)	312, 300, 341, 87, 416
^{233}U	1.592×10^5 y *2*	5/2+	Q_α4908.6 *12*	α(100%), SF(<6×10^{-11}%), ^{24}Ne(<9.5×10^{-11}%)	42, 97, 55, 29, 317
^{233}Np	36.2 m *1*	(5/2+)	Q_{EC}1029 *52*, Q_α5627 *51*	EC(100%), α(<0.001%)	312, 299, 547, 507, 234
^{233}Pu	20.9 m *4*		Q_{EC}2101 *72*, Q_α6416 *50*	EC+β+(99.88% *5*), α(0.12% *5*)	235, 535, 500, 688, 1004
^{233}Am			Q_{EC}(3250 *220*), Q_α(7100 *200*)		
^{233}Cm			Q_{EC}(4000 *500*), Q_α(7500 *400*)		
^{234}Ra	30 s *10*	0+	Q_{β^-}(2000 *700*)	β–(100%)	
^{234}Ac	44 s *7*		Q_{β^-}(4500 *400*), Q_α(3080 *200*)	β–(100%)	1847, 1912, 689, 1954, 1896
^{234}Th	24.10 d *3*	0+	Q_{β^-}273 *3*, Q_α3640 *33*	β–(100%)	63, 92, 93, 113, 83
^{234}Pa	6.70 h *5*	4+	Q_{β^-}2195 *5*, Q_α4350 *100*	β–(100%), SF(<3×10^{-10}%)	131, 946, 883, 570, 925
^{234}Pa(73.92+x)	1.17 m *3*	(0-)		β–(99.84% *4*), IT(0.16% *4*), SF(<1×10^{-9}%)	
^{234}U	2.455×10^5 y *6* 0.0055% *5*	0+	Δ38140.6 *20*, Q_α4858.5 *7*	α(100%), SF(1.64×10^{-9}% *22*), Ne(9×10^{-12}% *7*), Mg(1.4×10^{-11}% *3*)	53, 121, 455, 508, 582
^{234}Np	4.4 d *1*	(0+)	Q_{EC}1810 *8*, Q_α5359 *9*	EC+β+(100%)	1558, 1527, 1602, 1435, 1194
^{234}Pu	8.8 h *1*	0+	Q_{EC}388 *11*, Q_α6310 *5*	EC(~94%), α(~6%)	
^{234}Pu(4000)	3 ns			SF, IT	
^{234}Am	2.32 m *8*		Q_{EC}(4180 *210*), Q_α(6870 *200*)	EC(99.961% *12*), α(0.039% *12*), ECSF)	185, 168, 147, 112
^{234}Cm		0+	Q_{EC}(2300 *400*), Q_α(7400 *300*)		
^{235}Ac			Q_{β^-}(3400 *400*), Q_α(2900 *300*)		
^{235}Th	7.1 m *2*	(1/2+)	Q_{β^-}1926 *71*, Q_α(3400 *300*)	β–(100%)	417, 727, 696, 645, 704
^{235}Pa	24.5 m *2*	(3/2-)	Q_{β^-}1410 *50*, Q_α3990 *110*	β–(100%)	652, 659, 646, 638, 414
^{235}U	7.038×10^8 y *5* 0.7200% *12*	7/2-	Δ40914.1 *20*, Q_α4678.7 *7*	α(100%), SF(7.0×10^{-9}% *21*), ^{20}Ne(8×10^{-10}% *4*)	186, 144, 163, 205, 109
^{235}U (0.0768)~25 m		1/2+		IT(100%)	0.1
^{235}Np	396.1 d *12*	5/2+	Q_{EC}123.7 *9*, Q_α5191.9 *18*	EC(99.99740% *13*), α(0.00260% *13*)	26, 84, 81, 59, 102
^{235}Pu	25.3 m *5*	(5/2+)	Q_{EC}1142 *21*, Q_α5951 *20*	EC+β+(99.9973% *5*), α(0.0027% *5*)	49, 756, 34, 910, 945
^{235}Pu(3000)	25 ns *5*			SF(<100%)	
^{235}Am	15 m *5*		Q_{EC}(2560 *210*), Q_α(6700 *200*)	EC+β+, α	
^{235}Cm			Q_{EC}(3300 *300*), Q_α(7200 *200*)		
^{235}Bk			Q_{EC}(4600 *500*), Q_α(7800 *500*)		
^{236}Ac			Q_{β^-}(5100 *600*), Q_α(2700 *400*)		
^{236}Th	37.5 m *2*	0+	Q_{β^-}(1000 *4000*), Q_α(3180 *200*)	β–(100%)	111, 647, 196, 340, 434
^{236}Pa	9.1 m *1*	1(-)	Q_{β^-}2900 *200*, Q_α3770 *220*	β–(100%)	642, 688, 1763, 1808, 1560
^{236}U	2.342×10^7 y *3*	0+	Q_α4572.0 *9*	α(100%), SF(9.4×10^{-8}% *4*)	49, 113
^{236}Np	1.54×10^5 y *6*	(6-)	Q_{EC}929 *50*, Q_{β^-}477 *50* Q_α5007 *51*	EC(87.3% *5*), β–(12.5% *5*), α(0.16% *4*)	160, 104.2, 45, 104.1, 57
^{236}Np(60)	22.5 h *4*	1		EC(52% *1*), β–(48% *1*)	642, 688, 538, 104, 45
^{236}Pu	2.858 y *8*	0+	Q_α5867.07 *8*	α(100%), SF(1.37×10^{-7}% *7*)	48, 109, 166, 644, 516
^{236}Pu(3000)	37 ps *4*	(0+)		SF(<100%)	
^{236}Pu(4000)	34 ns *8*			SF(<100%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{236}Am			Q_{EC} (3280 *100*), Q_α (6400 *140*)	EC, α	
^{236}Cm		0+	Q_{EC} (1710 *220*), Q_α (7100 *200*)	EC, α	
^{236}Bk			Q_{EC} (5500 *400*), Q_α (7600 *500*)	EC+β+	
^{237}Th	5.0 m *9*		Q_{β^-} (2600 *400*), Q_α (3100 *300*)	β–(100%)	
^{237}Pa	8.7 m *2*	(1/2+)	Q_{β^-} 2250 *100*, Q_α (3700 *300*)	β–(100%)	854, 865, 529, 541, 499
^{237}U	6.75 d *1*	1/2+	Q_{β^-} 518.6 *6*, Q_α 4232.5 *10*	β–(100%)	60, 208, 26, 165, 65
^{237}Np	2.144×10^6 y *7*	5/2+	Q_α 4959.1 *12*	α(100%), SF(<2×10^{-10}%)	29, 86, 95, 143, 57
^{237}Np(2800) 45 ns *5*				SF, IT	
^{237}Pu	45.2 d *1*	7/2-	Q_{EC} 220.3 *13*, Q_α 5749.5 *23*	α(0.0042% *4*), EC(99.9958% *4*)	280, 299, 321, 229, 313
^{237}Pu(145.544) 0.18 s *2*		1/2+		IT(100%)	146
^{237}Pu(2600) 85 ns *15*				SF(<100%)	
^{237}Pu(2900) 1.1 μs *1*				SF(<100%)	
^{237}Am	73.0 m *10*	5/2(-)	Q_{EC} 1460 *52*, Q_α 6181 *5*	α(0.025% *3*), EC(99.975% *3*)	280, 438, 474, 909, 426
^{237}Am(2400) 5 ns *2*				SF(100%)	
^{237}Cm			Q_{EC} (2720 *210*), Q_α (6800 *200*)		
^{237}Bk			Q_{EC} (3900 *400*), Q_α (7500 *200*)		
^{237}Cf	2.1 s *3*		Q_{EC} (4600 *600*), Q_α (8100 *600*)	SF(~10% *syst*)	
^{238}Th			Q_{β^-} (1600 *400*), Q_α (2900 *400*)		
^{238}Pa	2.3 m *1*	(3-)	Q_{β^-} 3460 *60*, Q_α (3200 *400*)	β–(100%), SF(<2.6×10^{-6}%)	1015.3, 1014.6, 635, 448, 680
^{238}U	4.468×10^9 y *3* 99.2745% *60*	0+	Δ 47303.7 *20*, Q_α 4270 *3*	α(100%), SF(5.45×10^{-5}% *7*), β–β–(2.2×10^{-10}% *7*)	50, 114
^{238}U (2557.6) 225 ns *30*		0+		IT(~95%), SF(~5%)	
^{238}U (2557.6+x)>1 ns	99.2745% *60*			SF	
^{238}U (3176)					
^{238}Np	2.117 d *2*	2+	Q_{EC} 147.1 *11*, Q_{β^-} 1292.0 *7* Q_α 4690 *5*	β–(100%)	984, 1029, 1026, 924, 883
^{238}Np(2300) 112 ns *39*				SF(<100%)	
^{238}Pu	87.7 y *3*	0+	Q_α 5593.20 *19*	α(100%), SF(1.85×10^{-7}% *4*), Mg(~6×10^{-15}%), si(~1.4×10^{-14}%)	43, 100, 153, 766, 743
^{238}Pu(2400) 0.6 ns *2*				SF(<100%)	
^{238}Pu(3500) 6.0 ns *15*		(0+)		SF(<100%)	
^{238}Am	98 m *2*	1+	Q_{EC} 2258 *51*, Q_α 6042 *50*	EC+β+(>99.99%), α(1.0×10^{-4}% *4*)	963, 919, 561, 605, 1577
^{238}Am(2500) 35 μs *10*				SF(<100%)	
^{238}Cm	2.4 h *1*	0+	Q_{EC} 967 *63*, Q_α 6621 *36*	EC(>90%), α(<10%)	
^{238}Bk	144 s *6*		Q_{EC} (4900 *300*), Q_α (7330 *200*)	EC+β+(100%), ECSF%)	
^{238}Cf	21 ms *2*	0+	Q_{EC} (2900 *500*), Q_α (8000 *500*)	SF(~100% *syst*)	
^{239}Pa			Q_{β^-} (2600 *300*), Q_α (3200 *300*)		
^{239}U	23.45 m *2*	5/2+	Q_{β^-} 1263.5 *15*, Q_α 3894 *50*	β–(100%)	75, 44, 662, 844, 819
^{239}Np	2.3565 d *4*	5/2+	Q_{β^-} 721.8 *9*, Q_α 4556 *50*	β–(100%)	106, 278, 228, 210, 334
^{239}Pu	24110 y *30*	1/2+	Q_α 5244.50 *23*	α(100%), SF(3.0×10^{-10}% *8*)	52, 39, 129, 375, 414
^{239}Pu(3100) 7.5 μs *10*		(5/2+)		SF(<100%)	
^{239}Pu(3303) 2.6 ns^{+40}_{-12}		(9/2-)		SF	
^{239}Am	11.9 h *1*	(5/2)-	Q_{EC} 802.9 *20*, Q_α 5923.7 *18*	EC(99.990% *1*), α(0.010% *1*)	49, 278, 228, 226, 210
^{239}Am(2500) 163 ns *12*		(7/2+)		SF(<100%)	
^{239}Cm	~2.9 h	(7/2-)	Q_{EC} (1800 *100*), Q_α (6580 *100*)	EC(100%), α(<0.1%)	187, 146, 41
^{239}Bk		(7/2+)	Q_{EC} (3200 *300*), Q_α (7200 *200*)		
^{239}Cf	39 s^{+37}_{-12}		Q_{EC} (3900 *400*), Q_α (7810 *56*)	α	
^{240}Pa			Q_{β^-} (4100 *300*), Q_α (3000 *400*)		
^{240}U	14.1 h *1*	0+	Q_{β^-} 388 *16*, Q_α (4000 *300*)	β–(100%)	44, 190, 67, 169, 128
^{240}Np	61.9 m *2*	(5+)	Q_{β^-} 2200 *15*, Q_α 4560 *200*	β–(100%)	566, 974, 601, 896, 448
^{240}Np(20) 7.22 m *2*		1(+)		β–(99.89% *3*), IT(0.11% *3*)	20
^{240}Pu	6563 y *7*	0+	Q_α 5255.78 *15*	α(100%), SF(5.75×10^{-6}% *5*)	45, 104, 160, 212, 642
^{240}Am	50.8 h *3*	(3-)	Q_{EC} 1379 *14*, Q_α 5705 *52*	EC(100%), α(1.9×10^{-4}% *7*)	988, 889, 99, 43, 916
^{240}Cm	27 d *1*	0+	Q_{EC} 215 *14*, Q_α 6397.2 *6*	α(>99.5%), EC(<0.5%), SF(3.9×10^{-6}% *8*)	
^{240}Bk	4.8 m *8*		Q_{EC} (3940 *150*), Q_α (7060 *180*)	EC+β+(100%), ECSF%)	
^{240}Cf	1.06 m *15*	0+	Q_{EC} (2370 *250*), Q_α 7719 *10*	α(~98%), SF(~2%)	
^{240}Es			Q_{EC} (6200 *400*), Q_α (8400 *600*)		
^{241}U			Q_{β^-} (1900 *300*), Q_α (3570 *200*)		
^{241}Np	13.9 m *2*	(5/2+)	Q_{β^-} 1305 *71*, Q_α 4200 *120*	β–(100%)	175, 133, 519, 362, 835
^{241}Pu	14.35 y *10*	5/2+	Q_{β^-} 20.82 *20*, Q_α 5140.1 *5*	β–(99.998%), α(0.00245% *2*), SF(~2.4×10^{-14}%)	149, 104, 77, 160, 114
^{241}Pu(2200) 21 μs *3*				SF(100%)	
^{241}Pu(2200+x) 32 ns *5*				SF(100%)	
^{241}Am	432.2 y *7*	5/2-	Q_α 5637.81 *12*	α(100%), SF(4.3×10^{-10}% *18*)	60, 26, 33, 43, 99
^{241}Am(2200) 1.2 μs *3*				SF(<100%)	
^{241}Cm	32.8 d *2*	1/2+	Q_{EC} 767.4 *12*, Q_α 6184.9 *6*	EC(99.0% *1*), α(1.0% *1*)	472, 431, 206, 165, 132
^{241}Cm(2300) 15.3 ns *10*				SF(<100%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{241}Bk		(7/2+)	Q_{EC}(2400 *200*), Q_{α}(7130 *210*)		
^{241}Cf	3.78 m *70*		Q_{EC}(3300 *300*), Q_{α}(7660 *150*)	EC(~75%), α(~25%)	
^{241}Es	9 s^{+6}_{-4}		Q_{EC}(4600 *400*), Q_{α}(8320 *36*)	α(100%)	
^{242}U	16.8 m *5*	0+	Q_{β^-}(1200 *300*), Q_{α}(3800 *300*)	β–(100%)	68, 56, 585, 573, 330
^{242}Np(0+x)	5.5 m *1*	(6)	Q_{β^-}(2700 *210*), Q_{α}(4220 *220*)	β–(100%)	
^{242}Np(0+y)	2.2 m *2*	(1+)		β–(100%)	
^{242}Pu	3.733×10^5 y *12*	0+	Q_{α} 4984.4 *9*	α(100%), SF(5.54×10^{-4}% *6*)	45, 104, 159
^{242}Am	16.02 h *2*	1-	Q_{EC} 751.0 *7*, Q_{β^-} 664.8 *7* Q_{α} 5588.34 *25*	β–(82.7% *3*), EC(17.3% *3*)	45
^{242}Am(48.63)	141 y *2*	5-		IT(99.541% *12*), α(0.459% *12*), SF(<4.7×10^{-9}%)	49, 87, 110, 163, 67
^{242}Am(2200)	14.0 ms *10*			SF, IT	
^{242}Cm	162.8 d *2*	0+	Q_{α} 6215.56 *8*	α(100%), SF(6.37×10^{-6}% *18*)	44, 102, 157, 561, 605
^{242}Cm(1900)	40 ps *15*			SF(<100%)	
^{242}Cm(2800)	0.18 μs *7*			SF(<100%)	
^{242}Bk	7.0 m *13*		Q_{EC}(3000 *200*), Q_{α}(6960 *210*)	EC+β+(100%)	
^{242}Bk(2000)	9.5 ns *20*			SF(<100%)	
^{242}Bk(3000)	0.60 μs *10*			SF(<100%)	
^{242}Cf	3.49 m *12*	0+	Q_{EC}(1530 *200*), Q_{α} 7516 *4*	α	
^{242}Es	40 s^{+40}_{-20}		Q_{EC}(5600 *300*), Q_{α}(8220 *150*)	α(~100%), ECSF%)	
^{242}Fm	0.8 ms *2*	0+	Q_{EC}(3500 *500*), Q_{α}(8800 *600*)	SF(100%)	
^{243}Np	1.8 m *3*	(5/2-)	Q_{β^-}(2120 *32*), Q_{α}(4200 *300*)	β–(100%)	287
^{243}Pu	4.956 h *3*	7/2+	Q_{β^-} 582 *3*, Q_{α} 4756 *3*	β–(100%)	84, 42, 382, 67, 109
^{243}Pu(1700)	45 ns *15*			SF(<100%)	
^{243}Am	7370 y *40*	5/2-	Q_{α} 5438.1 *9*	α(100%), SF(3.7×10^{-9}% *9*)	75, 44, 118, 87, 142
^{243}Am(2300)	5.5 μs *5*			SF(<100%)	
^{243}Cm	29.1 y *1*	5/2+	Q_{EC} 8.9 *14*, Q_{α} 6168.8 *10*	α(99.71% *3*), EC(0.29% *3*), SF(5.3×10^{-9}% *9*)	278, 228, 210, 285, 106
^{243}Cm(1900)	42 ns *6*			SF(<100%)	
^{243}Bk	4.5 h *2*	(3/2-)	Q_{EC} 1508 *5*, Q_{α} 6874 *4*	EC(~99.85%), α(~0.15%)	187, 536, 146, 41
^{243}Bk(2200)	5 ns			SF(<100%)	
^{243}Cf	10.7 m *5*	(1/2+)	Q_{EC}(2250 *140*), Q_{α}(7330 *100*)	EC(~86%), α(~14%)	
^{243}Es	21 s *2*		Q_{EC}(3900 *300*), Q_{α} 8072 *10*	EC(<70%), α(>30%)	
^{243}Fm	0.18 s^{+8}_{-4}		Q_{EC}(4500 *400*), Q_{α} 8689 *50*	α(<100%), SF(<0.5%), EC	
^{244}Np	2.29 m *16*	(7-)	Q_{β^-}(3400 *300*), Q_{α}(4000 *400*)	β–(100%)	217, 162, 111, 46
^{244}Pu	8.08×10^7 y *10*	0+	Q_{α} 4665.5 *10*	α(99.879% *4*), SF(0.121% *4*), β–β–(<3×10^{-11}%)	
^{244}Am	10.1 h *1*	(6-)	Q_{EC} 76 *5*, Q_{β^-} 1428.1 *9* Q_{α} 5130 *15*	β–(100%)	744, 898, 154, 99, 538
^{244}Am(88.0)~26 m		1+		β–(99.9639% *13*), EC(0.0361% *13*)	1084, 942, 1063, 1041, 978
^{244}Cm	18.10 y *2*	0+	Q_{α} 5901.61 *5*	α(100%), SF(1.371×10^{-4}% *21*)	43, 99, 153, 555, 818
^{244}Cm(1040.181)	34 ms *2*	6+		IT(100%), SF(<7.7×10^{-10}%)	744, 154, 99, 538, 206
^{244}Bk	4.35 h *15*	(1-)	Q_{EC} 2256 *14*, Q_{α} 6778 *4*	EC(99.994% *2*), α(0.006% *2*)	892, 218, 922, 491, 188
^{244}Cf	19.4 m *6*	0+	Q_{EC} 766 *15*, Q_{α} 7329.1 *18*	α(100%)	
^{244}Es	37 s *4*		Q_{EC}(4640 *180*), Q_{α}(8030 *100*)	EC(96% *3*), α(4% *3*), ECSF)	
^{244}Fm	3.3 ms *4*	0+	Q_{EC}(2900 *300*), Q_{α}(8550 *200*)	SF(100%)	
^{245}Pu	10.5 h *1*	(9/2-)	Q_{β^-} 1205 *15*, Q_{α}(4500 *300*)	β–(100%)	327, 560, 308, 377, 630
^{245}Pu(2000)	90 ns *30*			SF(<100%)	
^{245}Am	2.05 h *1*	(5/2)+	Q_{β^-} 894 *3*, Q_{α} 5213 *71*	β–(100%)	253, 241, 296, 43, 198
^{245}Am(2400)	0.64 μs *6*			SF(<100%)	
^{245}Cm	8500 y *100*	7/2+	Q_{α} 5623.5 *19*	α(100%), SF(6.1×10^{-7}% *9*)	175, 133, 42, 190, 79
^{245}Cm(2100)	13.2 ns *18*			SF(<100%)	
^{245}Bk	4.94 d *3*	3/2-	Q_{EC} 810.2 *24*, Q_{α} 6454.5 *15*	EC(99.88% *1*), α(0.12% *1*)	206, 472, 165, 431, 195
^{245}Bk(1560)	2 ns *1*			SF(100%)	
^{245}Cf	45.0 m *15*	(5/2+)	Q_{EC}(1570 *100*), Q_{α}(7260 *100*)	EC(64% *3*), α(36% *3*)	
^{245}Es	1.1 m *1*	(3/2-)	Q_{EC}(3050 *220*), Q_{α} 7909 *3*	EC(60% *10*), α(40% *10*)	
^{245}Fm	4.2 s *13*		Q_{EC}(3800 *300*), Q_{α}(8440 *100*)	α(100%), SF(<0.11%)	
^{245}Md	0.35 s^{+23}_{-16}	(7/2)	Q_{EC}(5300 *500*), Q_{α}(9080 *230*)	α(100%)	
^{245}Md(100)	0.90 ms *25*	(1/2-)		SF(100%)	
^{246}Pu	10.84 d *2*	0+	Q_{β^-} 401 *14*, Q_{α}(4350 *200*)	β–(100%)	44, 224, 180, 28, 67
^{246}Am	39 m *3*	(7-)	Q_{β^-} 2376 *18*, Q_{α}(5150 *210*)	β–(100%)	679, 205, 153, 756, 99
^{246}Am(30)	25.0 m *2*	2(-)		β–(100%), IT(<0.01%)	1079, 799, 1062, 1036, 834
^{246}Am(2000)	73 μs *10*			SF(<100%)	
^{246}Cm	4730 y *100*	0+	Q_{α} 5474.8 *10*	α(99.9737% *3*), SF(0.0263% *3*)	45
^{246}Bk	1.80 d *2*	2(-)	Q_{EC} 1350 *60*, Q_{α} 6074 *60*	EC(100%), α(<0.2% *syst*)	799, 1081, 834, 1124, 1079
^{246}Cf	35.7 h *5*	0+	Q_{EC} 123 *60*, Q_{α} 6861.6 *10*	α(99.9996% *2*), SF(2.3×10^{-4}% *8*), EC(<5×10^{-4}%)	42, 96, 146
^{246}Cf(2500)	45 ns *15*			SF(<100%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{246}Es	7.7 m *5*	(4-,6+)	Q_{EC} (3880 *220*), Q_{α} (7740 *100*)	EC(90.1% *18*), α(9.9% *18*), ECSF)	
^{246}Fm	1.1 s *2*	0+	Q_{EC} (2160 *230*), Q_{α} 8374 *14*	α(92% *3*), SF(7.3% *24*), EC(<1% *syst*)	
^{246}Md	1.0 s *4*		Q_{EC} (6200 *400*), Q_{α} (8970 *210*)	α(100%)	
^{247}Pu	2.27 d *23*		Q_{β^-} (1800 *300*)	β–(100%)	
^{247}Am	23.0 m *13*	(5/2)	Q_{β^-} (1620 *100*), Q_{α} (4850 *110*)	β–(100%)	285, 227
^{247}Cm	1.56×10^{7} y *5*	9/2-	Q_{β^-} 45 *7*, Q_{α} 5353 *3*	α(100%)	403, 278, 287, 345, 229
^{247}Bk	1380 y *250*	(3/2-)	Q_{α} 5889 *5*	α(<100%)	84, 265
^{247}Cf	3.11 h *3*	(7/2+)	Q_{EC} 646 *6*, Q_{α} 6527 *8*	EC(99.965% *5*), α(0.035% *5*)	294, 448, 418, 407, 376
^{247}Es	4.55 m *26*	(7/2+)	Q_{EC} (2476 *31*), Q_{α} (7494 *30*)	EC(~93%), α(~7%)	
^{247}Fm	35 s *4*		Q_{EC} (2950 *150*), Q_{α} 8192 *50*	α(>50%), EC+β+(<50%)	
^{247}Fm(150)	9.2 s *23*			α(<100%)	
^{247}Md	1.12 s *22*		Q_{EC} (4600 *400*), Q_{α} (8910 *220*)	α(80% *17*), SF(20% *17*)	
^{248}Cm	3.40×10^{5} y *4*	0+	Q_{α} 5161.73 *25*	α(91.74% *3*), SF(8.39% *6*)	
^{248}Bk	>9 y	(6+)	Q_{EC} (687 *71*), Q_{β^-} (840 *71*) Q_{α} (5773 *71*)	α(>70%)	
^{248}Bk(30)	23.7 h *2*	1(-)		β–(70% *5*), EC(30% *5*), α(<0.001%)	592, 551, 43
^{248}Cf	333.5 d *28*	0+	Q_{α} 6361 *5*	α(99.9971% *3*), SF(0.0029% *3*)	
^{248}Es	27 m *4*	(2-,0+)	Q_{EC} (3055 *53*), Q_{α} (7160 *50*)	EC(>99%), α(~0.25%), ECSF%)	
^{248}Fm	36 s *3*	0+	Q_{EC} (1608 *54*), Q_{α} 8002 *11*	α(99% *1*), EC(~1%), SF(0.10% *5*)	
^{248}Md	7 s *3*		Q_{EC} (5330 *240*), Q_{α} (8700 *150*)	EC(80% *10*), α(20% *10*), SF(<0.05%)	
^{249}Cm	64.15 m *3*	1/2(+)	Q_{β^-} 901 *5*, Q_{α} 5221 *14*	β–(100%)	634, 560, 369, 622, 653
^{249}Bk	320 d *6*	7/2+	Q_{β^-} 124.0 *14*, Q_{α} 5525.0 *23*	β–(99.99855% *8*), α(0.00145% *8*), SF(4.76×10^{-8}% *23*)	327, 308
^{249}Cf	351 y *2*	9/2-	Q_{α} 6295.0 *7*	α(100%), SF(4.4×10^{-7}% *5*)	388, 333, 253, 267, 93
^{249}Es	102.2 m *6*	7/2(+)	Q_{EC} (1451 *30*), Q_{α} (6936 *30*)	EC(99.43% *8*), α(0.57% *8*)	380, 813, 375, 1219, 790
^{249}Fm	2.6 m *7*	(7/2+)	Q_{EC} (2440 *150*), Q_{α} (7810 *100*)	EC(~85% *syst*), α(~15% *syst*)	
^{249}Md	24 s *4*		Q_{EC} (3700 *300*), Q_{α} (8460 *100*)	EC(80% *10*), α(20% *10*)	
^{249}No			Q_{EC} (4500 *400*), Q_{α} (9170 *200*)		
^{250}Cm	9000 y *syst*	0+	Q_{β^-} 37 *12*, Q_{α} 5169 *18*	SF(~86%), α(~8%), β–(~6%)	
^{250}Bk	3.217 h *5*	2-	Q_{β^-} 1780 *4*, Q_{α} 5532 *18*	β–(100%)	989, 1032, 1029, 890, 929
^{250}Cf	13.08 y *9*	0+	Q_{α} 6128.44 *19*	α(99.923% *3*), SF(0.077% *5*)	43
^{250}Es	8.6 h *1*	(6+)	Q_{EC} (2100 *100*), Q_{α} (6880 *120*)	EC(>97%), α(<3% *syst*)	829, 303, 349, 384, 810
^{250}Es(0+x)	2.22 h *5*	1(-)		EC(>99%), α(<1% *syst*)	
^{250}Fm	30 m *3*	0+	Q_{EC} (800 *100*), Q_{α} 7557 *12*	α(>90%), EC(<10%), SF(0.0069% *12*)	
^{250}Fm(1000)	1.8 s *1*			IT(>80%), SF(<8×10^{-5}%)	
^{250}Md	52 s *6*		Q_{EC} (4600 *300*), Q_{α} (8310 *200*)	EC(93% *3*), α(7% *3*), ECSF)	
^{250}No	0.25 ms *5*	0+	Q_{EC} (2800 *400*), Q_{α} (8950 *200*)	SF(100%), α(~0.05% *syst*)	
^{251}Cm	16.8 m *2*	(1/2+)	Q_{β^-} 1420 *20*, Q_{α} (5200 *300*)	β–(100%)	543, 530, 390, 438, 563
^{251}Bk	55.6 m *11*	(3/2-)	Q_{β^-} 1093 *10*, Q_{α} (5650 *100*)	β–(100%), α(~1×10^{-5}%)	178, 130, 153, 164, 34
^{251}Cf	898 y *44*	1/2+	Q_{α} 6175.8 *10*	α(100%)	177, 227, 285, 62, 266
^{251}Es	33 h *1*	(3/2-)	Q_{EC} 376 *7*, Q_{α} 6597 *3*	EC(99.51% *12*), α(0.49% *12*)	178, 153, 164, 34, 48
^{251}Fm	5.30 h *8*	(9/2-)	Q_{EC} 1474 *7*, Q_{α} 7425.1 *20*	EC(98.20% *13*), α(1.80% *13*)	425, 480, 358, 383, 55
^{251}Md	4.0 m *5*		Q_{EC} (3120 *200*), Q_{α} (8070 *200*)	EC(>90%), α(<10%)	
^{251}No	0.8 s *3*		Q_{EC} (3800 *300*), Q_{α} (8890 *100*)	α(~100%), EC(~1% *syst*), SF(<8%)	
^{251}Lr			Q_{EC} (5000 *300*), Q_{α} (9300 *500*)		
^{252}Cm	<2 d	0+	Q_{β^-} (500 *400*)	β–(100%)	
^{252}Bk			Q_{β^-} (2500 *200*), Q_{α} (5500 *300*)		
^{252}Cf	2.645 y *8*	0+	Q_{α} 6216.87 *4*	α(96.908% *8*), SF(3.092% *8*)	43, 100, 155
^{252}Es	471.7 d *19*	(5-)	Q_{EC} 1260 *50*, Q_{β^-} 477 *51* Q_{α} (6789 *50*)	α(76% *4*), EC(24% *2*), β–(~0.01%)	924, 800, 785, 139, 102
^{252}Fm	25.39 h *5*	0+	Q_{α} 7152.7 *20*	α(99.9977% *2*), SF(0.00232% *15*)	96, 42
^{252}Md	2.3 m *8*		Q_{EC} (3880 *200*), Q_{α} (7980 *200*)	EC(>50%), α(<50%)	
^{252}No	2.30 s *22*	0+	Q_{EC} (2180 *200*), Q_{α} 8549 *5*	α(73.1% *19*), SF(26.9% *19*)	
^{252}Lr			Q_{EC} (5900 *300*), Q_{α} (9100 *400*)		
^{253}Bk			Q_{β^-} (1600 *400*), Q_{α} (5400 *200*)		
^{253}Cf	17.81 d *8*	(7/2+)	Q_{β^-} 288 *6*, Q_{α} 6126 *4*	β–(99.69% *4*), α(0.31% *4*)	46
^{253}Es	20.47 d *3*	7/2+	Q_{α} 6739.16 *5*	α(100%), SF(8.9×10^{-6}% *3*)	42, 389, 387, 43, 31

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{253}Fm	3.00 d *12*	1/2+	Q_{EC} 334 *4*, Q_{α} 7197 *4*	EC(88% *1*), α(12% *1*)	272, 145, 62, 405, 43
^{253}Md	~6 m		Q_{EC} (1960 *210*), Q_{α} (7710 *210*)	EC+β+(100%)	
^{253}No(0+x)	1.7 m *3*	(9/2-)	Q_{EC} (3100 *300*), Q_{α} (8400 *200*)	α(~80%), EC(~20% *syst*)	
^{253}Lr	1.3 s^{+6}_{-3}		Q_{EC} (4300 *300*), Q_{α} (8992 *36*)	α(98% *2*), EC(~1% *syst*), SF(<1%)	
^{253}Rf	~1.8 s		Q_{EC} (5000 *500*), Q_{α} (9600 *300*)	SF(~50%), α(~50%)	
^{254}Bk			Q_{β^-} (3100 *300*)		
^{254}Cf	60.5 d *2*	0+	Q_{α} 5926 *5*	SF(99.69% *2*), α(0.31% *2*)	
^{254}Es	275.7 d *5*	(7+)	Q_{EC} 652 *13*, Q_{β^-} 1088 *3* Q_{α} 6615.7 *15*	α(100%), EC(<1×10^{-4}%), β–(1.74×10^{-6}% *8*), SF(<3×10^{-6}%)	63, 316, 304, 385, 264
^{254}Es(78)	39.3 h *2*	2+		β–(98% *2*), α(0.33% *1*), IT(<3%), EC(0.078% *6*), SF(<0.045%)	212, 177, 71, 104, 50
^{254}Fm	3.240 h *2*	0+	Q_{α} 7307.2 *20*	α(99.9408% *2*), SF(0.0592% *3*)	99, 43, 154
^{254}Md(0+x)	10 m *3*		Q_{EC} (2680 *100*), Q_{α} (7890 *140*)	EC(<100%)	
^{254}Md(0+y)	28 m *8*			EC(<100%)	
^{254}No	55 s *3*	0+	Q_{EC} (1140 *100*), Q_{α} 8226 *13*	α(90% *4*), EC(10% *4*), SF(0.17% *5*)	
^{254}No(500)	0.28 s *4*			IT(>80%)	
^{254}Lr	13 s *2*		Q_{EC} (5300 *300*), Q_{α} (8850 *150*)	α(78% *6*), EC(22% *6*), SF(<0.16%)	
^{254}Rf	0.5 ms *2*	0+	Q_{EC} (3300 *400*), Q_{α} (9380 *200*)	SF(100%), α(~0.3% *syst*)	
^{254}Rf(0+x)	23 µs *3*			SF(100%)	
^{255}Cf	85 m *18*	(9/2+)	Q_{β^-} (720 *200*), Q_{α} (5740 *200*)	β–(100%)	
^{255}Es	39.8 d *12*	(7/2+)	Q_{β^-} 290 *10*, Q_{α} 6436.3 *13*	β–(92.0% *4*), α(8.0% *4*), SF(0.0045% *3*)	269, 234, 36
^{255}Fm	20.07 h *7*	7/2+	Q_{α} 7239.7 *18*	α(100%), SF(2.3×10^{-5}% *14*)	81.5, 58, 80.9, 23, 60
^{255}Md	27 m *2*	(7/2-)	Q_{EC} 1043 *8*, Q_{α} 7907 *4*	EC(92% *2*), α(8% *2*), SF(<1.4%)	430
^{255}No	3.1 m *2*	(1/2+)	Q_{EC} 2009 *11*, Q_{α} 8442 *8*	α(61.4% *25*), EC(38.6% *25*)	187, 192
^{255}Lr	22 s *4*		Q_{EC} (3300 *210*), Q_{α} (8614 *35*)	α(85% *15*), EC(<30%), SF(<0.10%)	
^{255}Rf	1.5 s *2*	(9/2-)	Q_{EC} (4400 *300*), Q_{α} (9250 *100*)	SF(52% *7*), α(48% *7*)	
^{255}Ha	1.6 s^{+6}_{-4}		Q_{EC} (5500 *500*), Q_{α} (9700 *300*)	α(>47%), SF(<53%)	
^{256}Cf	12.3 m *12*	0+	Q_{α} (5600 *400*)	SF(100%), β–(<1% *syst*), α(~1×10^{-6}% *syst*)	
^{256}Es	25.4 m *24*	(1+)	Q_{EC} (100 *300*), Q_{β^-} (1700 *100*) Q_{α} (6230 *220*)	β–(100%)	
^{256}Es(0+x)	~7.6 h	(8+)		β–(~100%), β–SF%)	
^{256}Fm	157.6 m *13*	0+	Q_{α} 7027 *5*	SF(91.9% *3*), α(8.1% *3*)	
^{256}Md	78.1 m *18*	(0-,1-)	Q_{EC} 2130 *53*, Q_{α} 7897 *16*	EC(90.7% *5*), α(9.3% *5*), SF(<2.8%)	400
^{256}No	3.3 s *2*	0+	Q_{EC} 208 *53*, Q_{α} 8581 *5*	α(99.5% *1*), SF(0.53%$^{+8}_{-4}$)	
^{256}Lr	28 s *3*		Q_{EC} (4180 *220*), Q_{α} (8880 *100*)	α(>80%), EC(<20%), SF(<0.026%)	
^{256}Rf	6.7 ms *2*	0+	Q_{EC} (2250 *220*), Q_{α} 8952 *23*	SF(98%$^{+2}_{-7}$), α(2.2%$^{+73}_{-18}$)	
^{256}Ha	2.6 s^{+14}_{-8}		Q_{EC} (6500 *400*), Q_{α} (9480 *200*)	SF(<40%), α(~70%), EC(~10% *syst*)	
^{257}Es			Q_{β^-} (800 *400*), Q_{α} (6050 *200*)		
^{257}Fm	100.5 d *2*	(9/2+)	Q_{α} 6863.8 *14*	α(99.790% *5*), SF(0.210% *5*)	241, 179, 62, 104, 75
^{257}Md	5.52 h *5*	(7/2-)	Q_{EC} 406 *7*, Q_{α} 7557.6 *10*	EC(85% *3*), α(15% *3*), SF(<1%)	371, 325, 181, 389
^{257}No	25 s *2*	(7/2+)	Q_{EC} 1228 *31*, Q_{α} 8452 *30*	α(~100%)	
^{257}Lr	0.646 s *25*	(9/2+)	Q_{EC} (2560 *210*), Q_{α} (9057 *32*)	α(100%), SF(<6.5×10^{-4}%)	
^{257}Rf	4.7 s *3*	(7/2+)	Q_{EC} (3200 *300*), Q_{α} (9150 *100*)	α(79.6% *20*), EC(18% *2*), SF(2.4% *3*)	117, 47, 296, 63
^{257}Ha	1.3 s^{+5}_{-3}		Q_{EC} (4500 *400*), Q_{α} (9312 *54*)	α(82% *11*), SF(17% *11*), EC(1% *syst*)	
^{258}Fm	370 µs *43*	0+	Q_{α} (6660 *200*)	SF(100%)	
^{258}Md	51.5 d *3*	(8-)	Q_{EC} (1260 *200*), Q_{β^-} (210 *200*) Q_{α} 7271.3 *19*	α(100%), SF(<0.003%), β–(<0.003%), EC(<0.003%)	368, 448, 277, 71, 297
^{258}Md(0+x)	57.0 m *9*	(1-)		EC(>70%), SF(<30%), α(<1.2%), β–(<30%)	
^{258}No	~1.2 ms	0+	Q_{α} (8150 *200*)	SF(100%), α(~1×10^{-3}% *syst*)	
^{258}Lr	3.9 s^{+4}_{-3}		Q_{EC} (3430 *220*), Q_{α} 8900 *20*	α(>95%), EC(<5%), SF(<5.0%)	
^{258}Rf	12 ms *2*	0+	Q_{EC} (1570 *230*), Q_{α} (9330 *200*)	SF(~87%), α(~13%)	

Isotope (Energy)	Half-life, Width, or Abundance	J^π	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{258}Ha	4.4 s^{+9}_{-6}		Q_{EC} (5500 *400*), Q_α (9546 *72*)	α(67%$^{+5}_{-9}$), EC(33%$^{+9}_{-5}$), SF(<34%)	95
^{258}Ha(0+x)	20 s *10*			EC(~100%)	
^{258}Sg	~2.9 ms	0+	Q_{EC} (3500 *500*), Q_α (9700 *300*)	SF(100%)	
^{259}Fm	1.5 s *3*		Q_{β^-}(80 *170*), Q_α (6470 *200*)	SF(100%)	
^{259}Md	96 m *4*	(7/2-)	Q_α (7110 *200*)	SF(~100%), α(<1.3%)	
^{259}No	58 m *5*	(9/2+)	Q_{EC} (490 *220*), Q_α (7890 *100*)	α(75% *4*), EC(25% *4*), SF(<10%)	
^{259}Lr	6.3 s^{+5}_{-4}		Q_{EC} (1830 *120*), Q_α (8674 *71*)	α(77% *2*), SF(23% *2*), EC(<0.5%)	
^{259}Rf	3.1 s *7*		Q_{EC} (2460 *100*), Q_α (9121 *71*)	α(93% *4*), SF(7% *4*), EC(~0.3%)	
^{259}Ha			Q_{EC} (3800 *300*), Q_α (9640 *200*)		
^{259}Sg	0.48 s^{+28}_{-13}	(1/2+)	Q_{EC} (4600 *400*), Q_α 9834 *30*	α(90% *10*), SF(<20%)	
^{260}Md	31.8 d *5*		Q_{β^-}(900 *400*), Q_α (6900 *300*)	SF(>73%), α(<25%), β–(<10%), EC(<15%)	
^{260}No	106 ms *8*	0+	Q_α (7700 *200*)	SF(100%)	
^{260}Lr	180 s *30*		Q_{EC} (2740 *230*), Q_α (8310 *100*)	α(75% *10*), EC(25% *10*)	
^{260}Rf	20.1 ms *7*	0+	Q_{EC} (800 *230*), Q_α (8900 *200*)	SF(100%)	
^{260}Ha	1.52 s *13*		Q_{EC} (4700 *300*), Q_α 9371 *71*	α(>90.4% *10*), SF(~9.6% *10*), EC(<2.5%)	
^{260}Sg	3.6 ms^{+9}_{-6}	0+	Q_{EC} (2800 *240*), Q_α 9923 *30*	α(50%$^{+30}_{-20}$), SF(50%$^{+20}_{-30}$)	
^{260}Ns			Q_{EC} (6900 *600*), Q_α (10300 *500*)	α(~100%)	
^{261}No			Q_α (7500 *300*)		
^{261}Lr	39 m *12*		Q_{EC} (1100 *400*), Q_α (8200 *200*)	SF(<100%)	
^{261}Rf	65 s *10*		Q_{EC} (1690 *230*), Q_α (8660 *100*)	α(>80%), SF(<10%), EC(<10% *syst*)	
^{261}Ha	1.8 s *4*		Q_{EC} (3100 *300*), Q_α (9220 *100*)	α(>50%), SF(<50%)	
^{261}Sg	0.23 s *3*		Q_{EC} (3800 *400*), Q_α (9803 *72*)	α(95% *5*), SF(<10%)	
^{261}Ns	11.8 ms^{+53}_{-28}		Q_{EC} (5200 *400*), Q_α 10562 *50*	α(95% *5*), SF(<10%)	
^{262}No	~5 ms	0+	Q_α (7300 *500*)	SF	
^{262}Lr	216 m *15*		Q_{EC} (2000 *600*), Q_α (8100 *300*)	SF(<10%)	
^{262}Rf	1.2 s^{+10}_{-5}	0+	Q_{EC} (200 *400*), Q_α (8490 *200*)	SF(100%)	
^{262}Rf(0+x)	47 ms *5*			SF(100%)	
^{262}Ha	34 s *4*		Q_{EC} (3900 *300*), Q_α (9010 *150*)	α(~64%), SF(~33%), EC(~3% *syst*)	
^{262}Sg		0+	Q_{EC} (2200 *300*), Q_α (9600 *200*)		
^{262}Ns	102 ms *26*		Q_{EC} (6100 *500*), Q_α (10220 *150*)	α(>80%), SF(<20%)	
^{262}Ns(320)	8.0 ms *21*			α(>70%), SF(<30%)	
^{263}Lr			Q_α (7700 *300*)		
^{263}Rf			Q_{EC} (1100 *400*), Q_α (8300 *160*)		
^{263}Ha	27 s^{+10}_{-7}		Q_{EC} (2360 *250*), Q_α (8830 *150*)	SF(57% *15*), α(43% *15*)	
^{263}Sg(0+x)	0.8 s *2*		Q_{EC} (3010 *210*), Q_α (9390 *100*)	SF(~70%), α(~30%)	
^{263}Sg(0+y)	0.31 s^{+16}_{-8}			α	
^{263}Ns			Q_{EC} (4500 *400*), Q_α (10100 *300*)		
^{263}Hs			Q_{EC} (5200 *600*), Q_α (10700 *300*)		
^{264}Rf		0+	Q_α (8100 *400*)		
^{264}Ha			Q_{EC} (3300 *500*), Q_α (8660 *200*)		
^{264}Sg		0+	Q_{EC} (1400 *400*), Q_α (9210 *200*)		
^{264}Ns(0+x)	0.44 s^{+60}_{-16}		Q_{EC} (5400 *400*), Q_α (9970 *150*)	α	
^{264}Hs	~0.85 ms	0+	Q_{EC} (3400 *300*), Q_α 10591 *20*	α(~100%), SF(<1.5%)	
^{265}Ha			Q_α (8490 *200*)		
^{265}Sg	~10 s		Q_{EC} (2200 *300*), Q_α (9045 *93*)	α(>50%), SF(<50%)	
^{265}Ns			Q_{EC} (3800 *400*), Q_α (9800 *300*)		
^{265}Hs(0+x)	0.9 ms^{+9}_{-3}		Q_{EC} (4500 *500*), Q_α (10430 *120*)	α	
^{265}Hs(0+y)	~1.6 ms			α(~100%), SF(<9%)	
^{265}Mt			Q_{EC} (6100 *600*), Q_α (11300 *400*)		
^{266}Sg	20 s *calc*	0+	Q_α 8762 *51*	α(>50%), SF(<50%)	
^{266}Ns			Q_{EC} (4700 *500*), Q_α (9600 *300*)		
^{266}Hs		0+	Q_{EC} (2800 *500*), Q_α (10200 *300*)		
^{266}Mt	3.4 ms^{+61}_{-13}		Q_{EC} (7400 *500*), Q_α (11480 *160*)	α(~100%), SF(<5.5%)	
^{267}Hs(0+x)	60 ms^{+30}_{-15}		Q_α (10114 *72*)	α	
^{267}Mt			Q_{EC} (5400 *600*), Q_α (11000 *400*)		
^{267}110(0+x)	~3 μs		Q_{EC} (6000 *700*), Q_α (11780 *110*)	α	
^{268}Hs		0+	Q_α (9900 *300*)		
^{268}Mt	0.07 s^{+10}_{-3}		Q_{EC} (6200 *500*), Q_α (10700 *150*)	α	
^{268}110		0+	Q_{EC} (4400 *600*), Q_α (11700 *500*)		

Isotope (Energy)	Half-life, Width, or Abundance	J^{π}	Q-value (keV) or Mass Excess	Decay Mode(s)	Principal γ-rays
^{269}Hs	~10 s		Q_{α}(9700 *400*)	α	
^{269}Mt			Q_{EC}(4600 *700*), Q_{α}(10500 *400*)		
^{269}110	0.17 ms$^{+16}_{-6}$		Q_{EC}(5600 *600*), Q_{α}(11680 *100*)	α	
^{270}Mt			Q_{α}(10400 *500*)		
^{270}110		0+	Q_{EC}(3600 *900*), Q_{α}(11200 *500*)		
^{271}Mt			Q_{α}(10100 *500*)		
^{271}110(0+x)	1.1 ms$^{+6}_{-3}$		Q_{EC}(4500 *600*), Q_{α}(10900 *150*)	α	
^{271}110(0+y)	0.06 s$^{+27}_{-3}$			α	
^{272}110		0+	Q_{α}(10800 *500*)		
^{272}111	1.5 ms$^{+20}_{-5}$		Q_{EC}(6700 *700*), Q_{α}(11230 *100*)	α	
^{273}110	~120 ms		Q_{α}(11670 *110*)	α	
^{273}110(200)	~80 µs			α	
^{277}112	0.24 ms$^{+43}_{-9}$			α	