

APPENDIX D. ENERGY-ORDERED DECAY γ -RAY TABLE

An energy-ordered list of γ rays from nuclei with half-lives ≥ 1 d is given in Table 1. The table includes only the most intense γ rays (up to a maximum of four lines) from each parent. Intensities are absolute (γ 's per 100 parent decays) unless preceded by a †. These data are taken from the *Table of Isotopes*. E_γ for the strongest associated lines from each decay are listed in order of decreasing intensity.

Table 1. The most intense decay γ -rays from parents with $t_{1/2} \geq 1$ d

$E_\gamma(\Delta E)$	$I_\gamma(\Delta I)$	Decay Parent	Associated γ -rays	$E_\gamma(\Delta E)$	$I_\gamma(\Delta I)$	Decay Parent	Associated γ -rays
6.238 20	1.03 3	¹⁸¹ W(121.2 d)	136.266, 152.315	41	0.006	²⁴³ Bk(4.5 h)	187.1, 536, 146.4
7.133 10	4.95 15	¹⁶⁰ Er(28.58 h)	59.98	41.4 2	9.2 9	¹⁸⁴ Hf(4.12 h)	139.1, 344.9, 181.0
8.41031 19	0.158 18	¹⁶⁹ Er(9.40 d)	109.77987, 118.19018	41.53 6		²⁴⁸ Bk(23.7 h)	550.7, 592.2
9.3 1		²²⁷ Ac(21.773 y)	24.5, 15.2	41.53 6	0.011	²⁵² Fm(25.39 h)	96.28
10.6 5	0.8	¹³⁷ Ce(9.0 h)	447.15, 436.59, 433.22	41.79 5	0.050	²⁵³ Es(20.47 d)	389.11, 387.1, 42.98
12.4	3.0×10 ⁻⁶	⁴⁵ Ca(163.8 d)		41.8 2	0.76 7	²⁴³ Pu(4.956 h)	84.0, 381.7, 67
12.76 3	†19 4	²²⁸ Ra(5.75 y)	13.52, 16.18, 18.8	41.86 2	0.00513 23	¹⁹¹ Os(15.4 d)	129.419, 82.407, 47.05
13.271 18	0.089	⁷³ As(80.30 d)	53.440	41.95 3	0.350 17	²⁴⁵ Cm(8500 y)	174.94, 132.99, 189.82
13.52 2	†100	²²⁸ Ra(5.75 y)	16.18, 12.76, 18.8	42.10 2	7.7 14	¹⁰⁰ Pd(3.63 d)	84.02, 74.78, 126.05
14.41300 15	9.16 15	⁵⁷ Co(271.79 d)	122.0614, 136.4743, 692.03	42.13 1		²⁴² Am(16.02 h)	
15.2 1		²²⁷ Ac(21.773 y)	24.5, 9.3	42.13 1	0.014	²⁴⁶ Cf(35.7 h)	96, 146
16.18 3	†45 5	²²⁸ Ra(5.75 y)	13.52, 12.76, 18.8	42.44 2	0.044 3	²²⁹ Pa(1.50 d)	118.968, 146.345, 117.159
16.4 3	8.3 17	⁷² Zn(46.5 h)	145.04, 191.96, 103.14	42.44 2	0.0862 13	²³³ U(1.592×10 ⁵ y)	97.134, 54.699, 29.192
18.5 5	27.2 6	¹¹² Pd(21.03 h)		42.824 8	0.09 1	²⁴⁰ Am(50.8 h)	987.76, 888.80, 98.860
18.8 4	†13 3	²²⁸ Ra(5.75 y)	13.52, 16.18, 12.76	42.824 8	0.0044100 24	²⁴⁴ Cm(18.10 y)	98.860, 152.63, 554.60
19.394 2	13.7 7	¹⁷¹ Lu(8.24 d)	739.78, 667.404, 75.878	42.852 5	0.014	²⁵⁰ Cf(13.08 y)	
21.531 7	0.031	¹⁵¹ Sm(90 y)		42.98 3	0.009	²⁵³ Es(20.47 d)	41.79, 389.11, 387.1
21.531 7	2.85 12	¹⁵¹ Gd(124 d)	153.56, 243.28, 174.70	43.119 1	5	¹⁹⁴ Os(6.0 y)	82.339
22.510 8	>0.050	¹⁴⁹ Pm(53.08 h)	285.95, 859.46, 590.88	43.38 3	0.007	²⁴⁸ Bk(23.7 h)	
22.510 8	2.32 6	¹⁴⁹ Eu(93.1 d)	327.526, 277.089, 254.566	43.38 3	0.0148 9	²⁵² Cf(2.645 y)	100.4, 155.0
23.001 17	0.15 3	²⁵⁵ Fm(20.07 h)	81.477, 58.477, 80.92	43.423 10	0.0039	²³⁷ Pu(45.2 d)	59.537, 26.345, 33.195
23.28 1	6.4 6	¹²⁶ Sn(1×10 ⁵ y)	87.57, 64.28, 86.94	43.423 10	†0.00300 8	²⁴¹ Am(432.2 y)	59.537, 26.345, 33.195
23.870 8	16.1 5	¹¹⁹ Sb(38.19 h)		43.498 1	0.0395 8	²³⁸ Pu(87.74 y)	99.853, 152.720, 766.38
23.9331 2	20.3 11	¹⁷² Hf(1.87 y)	125.812, 67.35, 81.7515	43.533 1	5.93 13	²⁴³ Am(7370 y)	74.664, 117.84, 86.71
24.46 1	3.90 15	¹⁰¹ Pd(8.47 h)	296.29, 590.44, 269.67	43.81 2	25.0 13	²⁴⁶ Pu(10.84 d)	223.75, 179.94, 27.58
24.5 2		²²⁷ Ac(21.773 y)	15.2, 9.3	44.08 3	0.0325 12	²⁴² Cm(162.8 d)	101.90, 157.42, 561.11
25.646 4	14.5 3	²³¹ Th(25.52 h)	84.216, 89.944, 81.227	44.10 7	1.05 5	²⁴⁰ U(14.1 h)	189.7, 66.5, 169.2
25.646 4	12	²³¹ U(4.2 d)	84.216, 217.940, 58.570	44.54 2		²⁴² Am(16.02 h)	
25.646 4	†0.00041 5	²³⁵ Np(396.1 d)	84.216, 81.227, 58.570	44.54 2		²⁴⁶ Cm(4730 y)	
25.65150 7	23.2 10	¹⁶¹ Tb(6.88 d)	48.91562, 74.56711, 57.196	44.63 10	0.011	²³⁶ Np(22.5 h)	
26.345 1	2.43 6	²³⁷ U(6.75 d)	59.537, 208.00, 164.61	44.63 10	0.0167 6	²³⁶ Np(1.54×10 ⁵ y)	158.35, 102.82
26.345 1	0.221 7	²³⁷ Pu(45.2 d)	59.537, 33.195, 43.423	44.915 13	0.036	²⁴² Pu(3.733×10 ⁵ y)	103.50, 158.80
26.345 1	†0.41000 5	²⁴¹ Am(432.2 y)	59.537, 33.195, 43.423	45.242 3	0.13 3	²³⁶ Np(1.54×10 ⁵ y)	160.308, 104.234, 104.1
27.36 1	10.3 4	²³¹ Pa(32760 y)	300.07, 302.65, 283.69	45.242 3	0.0450 8	²⁴⁰ Pu(6563 y)	104.234, 160.308, 212.46
27.58 2	3.5 4	²⁴⁶ Pu(10.84 d)	43.81, 223.75, 179.94	45.2972 13	1.326 25	¹⁵⁶ Eu(4.7611 y)	86.545, 105.305, 60.0086
28.242 9	1.13 8	¹⁶⁶ Dy(81.6 h)	82.471, 54.2400, 426.00	45.48 2	19.5 20	⁷⁶ Kr(14.8 h)	315.7, 270.2, 406.5
29.10 10	21.6 15	⁸⁶ Zr(16.5 h)	242.80, 612.00, 135.6	45.85 9	58	⁷² Se(8.40 d)	
29.192 1	0.0120 3	²³³ U(1.592×10 ⁵ y)	42.44, 97.134, 54.699	46.3 2	†100	²⁵³ Cf(17.81 d)	
29.374 20	15.0 10	²³⁷ Np(2.14×10 ⁶ y)	86.477, 94.66, 143.249	46.4839 4	7.97 12	¹⁸³ Re(70.0 d)	162.3219, 291.7238, 208.8057
29.9640 7	14.1 4	¹⁴⁰ Ba(12.752 d)	537.261, 162.660, 304.849	46.539 1	4.25 4	²¹⁰ Pb(22.3 y)	
30.60 3	0.253 5	²⁰¹ Tl(72.912 h)	167.43, 135.34, 32.19	47.05 3	0.00270 20	¹⁹¹ Os(15.4 d)	129.419, 82.407, 41.86
30.6383 11	95 1	²⁸ Mg(20.91 h)	1342.27, 941.72, 400.56	47.155 6	16.9 4	¹⁶⁵ Tm(30.06 h)	242.917, 297.369, 806.372
30.77 2		⁹³ Zr(1.53×10 ⁶ y)		47.574 9	0.066	²³⁶ Pu(2.858 y)	108.96, 166.0, 643.5
30.77 2		⁹³ Mo(4.0×10 ³ y)		48.91562 14	17.0 4	¹⁶¹ Tb(6.88 d)	25.65150, 74.56711, 57.196
30.898 4	0.75 3	¹⁹⁵ Au(186.09 d)	98.85, 129.70, 211.407	49.10 10	0.005 1	²³⁹ Am(11.9 h)	
32.19 3	0.258 5	²⁰¹ Tl(72.912 h)	167.43, 135.34, 30.60	49.367 4	0.19	²⁴² Am(141 y)	86.68, 109.69, 163.24
33.195 11	0.0745 23	²³⁷ Pu(45.2 d)	59.537, 26.345, 43.423	49.369 9	0.078	²³⁶ U(2.342×10 ⁷ y)	112.75
33.195 11	†0.02600 1	²⁴¹ Am(432.2 y)	59.537, 26.345, 43.423	49.55 6	0.064 8	²³⁸ U(4.468×10 ⁹ y)	113.5
33.568 10	0.200 22	¹⁴⁴ Ce(284.893 d)	133.515, 80.120, 40.98	49.72 1	15.0 3	¹³² Te(3.204 d)	228.16, 116.30, 111.76
34.0		²⁵¹ Es(33 h)	177.7, 152.8, 163.8	49.82680 16	0.360 9	¹⁹⁹ Au(3.139 d)	158.37947, 208.20597
35.4919 5	6.68 13	¹²⁵ I(59.408 d)		50.13 1	†8.0 4	²²⁷ Th(18.72 d)	235.971, 256.25, 329.851
35.7 3		²⁵⁵ Es(39.8 d)	269.1, 233.6	51.624 1	0.007100 5	²³⁹ Pu(24110 y)	38.661, 129.297, 375.045
36.202 16	0.67 6	¹⁸⁹ Ir(13.2 d)	245.09, 69.537, 59.053	51.72 4	0.026 3	²³⁰ Pa(17.4 d)	314.8, 366.56, 383.6
37.138 10	1.9	¹²¹ Sn(55 y)		52.33 5	0.55 5	²⁵² Es(471.7 d)	64.42, 418.5, 377.4
37.138 10	0.94 10	¹²¹ Te(154 d)	1102.149, 998.291, 909.847	53.20 2	0.123 2	²³⁴ U(2.455×10 ⁵ y)	120.90, 454.95, 508.20
37.9681 7	>2.9	¹⁵⁶ Sm(9.4 h)	87.4897, 203.818, 165.8452	53.440 9	10.34	⁷³ As(80.30 d)	13.271
38.661 2	0.000500 2	²³⁹ Pu(24110 y)	51.624, 129.297, 375.045	54.2400 7	0.81 12	¹⁶⁶ Dy(81.6 h)	82.471, 28.242, 426.00
39.08	†>0.15	¹³⁴ Ce(75.9 h)	162.306, 130.414, 300.884	54.548 9	3.7 3	¹⁵⁷ Eu(15.18 h)	63.929, 410.723, 370.509
39.578 4	7.45 30	¹²⁹ I(1.57×10 ⁷ y)		54.548 9	0.0084 8	¹⁵⁷ Tb(99 y)	
39.578 4	2.97 9	¹²⁹ Cs(32.06 h)	371.918, 411.490, 548.945	54.699 1	0.0182 3	²³³ U(1.592×10 ⁵ y)	42.44, 97.134, 29.192
39.757 6	0.07	¹⁰³ Pd(16.991 d)	357.47, 497.080, 294.978	54.968 4	6.81 17	¹²⁵ Xe(16.9 h)	188.418, 243.378, 453.796
40.09 5	30	²²⁵ Ra(14.9 d)		55.506 8	5.8 3	¹⁸² Os(22.10 h)	510.056, 180.230, 263.285
40.09 5	0.104 9	²²⁹ Pa(1.50 d)	64.70, 75.12, 115.55	57.0723 12	4.6 8	¹⁶⁷ Tm(9.25 d)	207.801, 531.54, 264.9
40.84 3	25.5 13	⁶² Zn(9.186 h)	596.56, 548.35, 507.60	57.196 1	1.79 5	¹⁶¹ Tb(6.88 d)	25.65150, 48.91562, 74.56711
40.98 10	0.257 16	¹⁴⁴ Ce(284.893 d)	133.515, 80.120, 33.568	57.356 7	11.7 3	¹⁴³ Ce(33.039 h)	293.266, 664.571, 721.929
41.0 5	30.0 20	¹¹⁸ Sb(5.00 h)	1229.68, 253.68, 1050.69	57.61 2	0.50 5	¹²⁷ Te(109 d)	658.89, 593.31, 650.91

D-2

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
57.762 5	0.200 4	²³² U(68.9 y)	129.065, 270.243, 327.995	79.45 2	0.00048 13	¹⁵⁹ Dy(144.4 d)	58.00, 348.16, 290.27
58.00 1	2.15 10	¹⁵⁹ Gd(18.479 h)	363.55, 348.16, 226.01	79.5104 14	11.6 4	¹⁵⁸ Tb(180 y)	944.09, 962.06, 181.930
58.00 1	2.22 13	¹⁵⁹ Dy(144.4 d)	348.16, 79.45, 290.27	79.623 10	0.27 3	¹³³ Xe(5.243 d)	80.997, 160.613, 302.853
58.39 3	19.2 4	¹³³ Ce(4.9 h)	477.22, 510.36, 130.803	80.120 5	1.36 6	¹⁴⁴ Ce(284.893 d)	133.515, 40.98, 33.568
58.477 15	0.67	²⁵⁵ Fm(20.07 h)	81.477, 80.92, 23.001	80.185 2	2.62 3	¹³¹ I(8.02070 d)	364.489, 636.989, 284.305
58.570 3	0.44	²³¹ U(4.2 d)	25.646, 84.216, 217.940	80.574 8	6.71 8	¹⁶⁶ Ho(26.83 h)	1379.40, 1581.89, 1662.48
58.570 3	†0.00001 65	²³⁵ Np(396.1 d)	25.646, 84.216, 81.227	80.723 2	11.10 22	¹⁵³ Dy(6.4 h)	213.754, 99.659, 254.259
58.603 7	†100	⁶⁰ Fe(1.5×10 ⁶ y)		80.92 5	0.27	²⁵⁵ Fm(20.07 h)	81.477, 58.477, 23.001
59.053 15	1.20 12	¹⁸⁹ Ir(13.2 d)	245.09, 69.537, 36.202	80.997 3	38.0 7	¹³³ Xe(5.243 d)	79.623, 160.613, 302.853
59.537 1	34.5 7	²³⁷ U(6.75 d)	208.00, 26.345, 164.61	80.997 3	34.06 27	¹³³ Ba(10.52 y)	356.017, 302.853, 383.851
59.537 1	3.28 10	²³⁷ Pu(45.2 d)	26.345, 33.195, 43.423	81.227 3	0.89 5	²³¹ Th(25.52 h)	25.646, 84.216, 89.944
59.537 1	†6	²⁴¹ Am(432.2 y)	26.345, 33.195, 43.423	81.227 3	†0.00003 93	²³⁵ Np(396.1 d)	25.646, 84.216, 58.570
59.97 3	2.30 13	²⁰⁰ Pt(12.5 h)	76.21, 135.90, 243.71	81.477 20	0.81	²⁵⁵ Fm(20.07 h)	58.477, 80.92, 23.001
59.98 3	0.069 4	¹⁶⁰ Er(28.58 h)	7.133	81.5 1	6 1	¹⁷⁵ Ta(10.5 h)	207.4, 348.5, 266.9
60.0 1	5.7 12	¹⁸⁵ Ir(14.4 h)	254.4, 1828.8, 97.4	81.7515 5	4.52 23	¹⁷² Hf(1.87 y)	23.9331, 125.812, 67.35
60.0086 10	1.13 5	¹⁵⁵ Eu(4.7611 y)	86.545, 105.305, 45.2972	81.99 2	0.0034 23	¹⁵⁴ Eu(8.593 y)	184.810
60.82 7	0.5 3	¹⁵⁷ Dy(8.14 h)	326.16, 182.20, 83.01	82.29 2		¹⁶⁶ Yb(56.7 h)	
61.25 5	12	¹⁴⁵ Sm(340 d)	492.31, 431.4	82.339 2	>0.011	¹⁹⁴ Os(6.0 y)	43.119
61.46 3	6.2 4	¹⁹⁵ Hg(9.9 h)	779.80, 585.13, 180.11	82.407 7	0.0255 20	¹⁹¹ Os(15.4 d)	129.419, 41.86, 47.05
61.5 3	0.56 22	²⁵¹ Cf(898 y)	176.6, 227.0, 285.0	82.407 7	4.9 5	¹⁹¹ Pt(2.9 d)	538.90, 409.44, 359.90
61.6 1	1.45 8	²⁵⁷ Fm(100.5 d)	241.0, 179.4, 104.4	82.471 2	14	¹⁶⁶ Dy(81.6 h)	28.242, 54.2400, 426.00
62.47 5	0.16	²⁵³ Fm(3.00 d)	271.8, 144.99, 405	82.802 22	†1.2	²¹⁰ At(8.1 h)	106, 167, 141.2
62.6 2	0.9 4	¹⁷³ Tm(8.24 h)	398.9, 461.4	83.01 4	0.62 18	¹⁵⁷ Dy(8.14 h)	326.16, 182.20, 60.82
63.0 20	2.0 2	²⁵⁴ Es(275.7 d)	316, 304, 385	83.3676 3	0.211 21	¹⁵³ Gd(241.6 d)	97.4316, 103.1807, 69.67340
63.12077 9	44.2 6	¹⁶⁹ Yb(32.026 d)	197.95788, 177.21402, 109.77987	84.0 2	23	²⁴³ Pu(4.956 h)	41.8, 381.7, 67
63.29 2	4.8 5	²³⁴ Th(24.10 d)	92.38, 92.80, 112.81	84.0 2	40	²⁴⁷ Bk(1380 y)	265
63.582 3	0.109 16	¹⁸⁸ W(69.4 d)	290.669, 227.083, 207.849	84.02 2	45	¹⁰⁰ Pd(3.63 d)	74.78, 126.05, 42.10
63.83 2	0.267 14	²³² Th(1.405×10 ¹⁰ y)	140.86	84.216 3	6.6 3	²³¹ Th(25.52 h)	25.646, 89.944, 81.227
63.929 8	23.0 23	¹⁵⁷ Eu(15.18 h)	410.723, 370.509, 54.548	84.216 3	7	²³¹ U(4.2 d)	25.646, 217.940, 58.570
64.28 1	9.6 11	¹²⁶ Sn(1×10 ⁵ y)	87.57, 86.94, 23.28	84.216 3	0.000179 10	²³⁵ Np(396.1 d)	25.646, 81.227, 58.570
64.42 5	0.274 23	²⁵² Es(471.7 d)	52.33, 418.5, 377.4	84.2551 3	3.3	¹⁷⁰ Tm(128.6 d)	
64.70 5	0.045 4	²²⁹ Pa(1.50 d)	40.09, 75.12, 115.55	84.2551 3	4.256 5	¹⁷⁰ Lu(2.00 d)	1280.25, 2041.88, 985.10
65.548 13	0.259 9	¹²¹ Te(16.78 d)	573.139, 507.591, 470.472	84.373 3	1.266 20	²²⁸ Th(1.9131 y)	215.985, 131.613, 166.411
66.5 1	0.154 15	²⁴⁰ U(14.1 h)	44.10, 189.7, 169.2	86.25 4	1.33 10	²²⁹ Th(7340 y)	193.509, 210.853, 86.40
66.720 10	0.14	¹⁷¹ Tm(1.92 y)		86.40 5	2.57 10	²²⁹ Th(7340 y)	193.509, 210.853, 86.25
67 1	0.23 11	²⁴³ Pu(4.956 h)	84.0, 41.8, 381.7	86.477 10	12.4 4	²³⁷ Np(2.14×10 ⁶ y)	29.374, 94.66, 143.249
67.03 1	78 9	⁷³ Se(7.15 h)	360.80, 865.09, 510	86.545 3	30.7 6	¹⁵⁵ Eu(4.7611 y)	105.305, 45.2972, 60.0086
67.22 2	0.553 15	¹⁴⁵ Pm(17.7 y)	72.500	86.545 3	32.0 6	¹⁵⁵ Tb(5.32 d)	105.305, 180.103, 262.322
67.35 10	5.3 6	¹⁷² Hf(1.87 y)	23.9331, 125.812, 81.7515	86.68 4	0.037	²⁴² Am(141 y)	49.367, 109.69, 163.24
67.67 1	0.11 3	²²⁶ Ac(29 h)	253.73, 186.05	86.71 2	0.338 7	²⁴³ Am(7370 y)	74.664, 43.533, 117.84
67.67 1	0.376 21	²³⁰ Th(7.538×10 ⁴ y)	143.87, 253.73, 186.05	86.814 3	1.97 12	²³³ Pa(26.967 d)	312.17, 300.34, 340.81
67.75001 17	41.2 6	¹⁸² Ta(114.43 d)	1121.3007, 1221.4066, 1189.0503	86.94 1	8.9 9	¹²⁶ Sn(1×10 ⁵ y)	87.57, 64.28, 23.28
67.75001 17	38.2 13	¹⁸² Re(12.7 h)	1121.3007, 1221.4066, 1189.0503	87.4 1		²⁴³ Bk(4.5 h)	755, 946, 840
67.75001 17	22.2 22	¹⁸² Re(64.0 h)	229.3220, 1121.3007, 1221.4066	87.4897 3	24 7	¹⁵⁶ Sm(9.4 h)	203.818, 165.8452, 37.9681
67.875	94.4 14	⁴⁴ Ti(49 y)	78.337, 146.212	87.57 1	37	¹²⁶ Sn(1×10 ⁵ y)	64.28, 86.94, 23.28
68.107 4	3.29 7	¹⁷² Er(49.3 h)	610.062, 407.338, 446.025	87.73 1	1.6×10 ⁻⁵ 10	¹⁶⁸ Tm(93.1 d)	
68.573 14	0.42 3	²¹¹ Rn(14.6 h)	167.90, 236.48	87.8671 15	0.202 11	⁷⁷ As(38.83 h)	238.996, 520.639, 249.786
69.21 4	†0.0071 6	²²⁷ Ac(21.773 y)	100, 160.26, 147.48	88.04 5	1.171 3	¹⁰⁹ Pd(13.7012 h)	311.4, 647.3, 781.4
69.537 15	3.5 4	¹⁸⁹ Ir(13.2 d)	245.09, 59.053, 36.202	88.04 5	3.61 10	¹⁰⁹ Cd(462.6 d)	
69.67340 22	4.85 6	¹⁵³ Sm(46.27 h)	103.1807, 97.4316, 75.4226	88.34 3	13.3 13	¹⁷⁶ Lu(3.78×10 ¹⁰ y)	306.78, 201.83, 400.99
69.67340 22	2.54 9	¹⁵³ Gd(241.6 d)	97.4316, 103.1807, 83.3676	88.34 3	12	¹⁷⁶ Ta(8.09 h)	1159.28, 1224.93, 201.83
70.44 7	8.3 12	¹¹¹ Pd(5.5 h)	391.25, 632.80, 575.0	88.9667 14	8.4 9	¹⁵⁶ Eu(15.19 d)	811.79, 1230.68, 1153.67
71.1 1	†8.0 5	²⁵⁸ Md(51.5 d)	367.8, 447.9, 276.8	88.9667 14	17.7 19	¹⁵⁶ Tb(5.35 d)	534.318, 199.2132, 1222.36
71.30 5	0.043 4	²⁵⁴ Es(39.3 h)	211.80, 177.30, 104.0	89.36 1	2.40 18	¹⁷⁵ Hf(70 d)	343.40, 433.0, 229.6
72.001 4	11.14 22	¹⁸⁷ W(23.72 h)	685.774, 479.531, 134.243	89.65 7	†0.0007	⁹⁹ Tc(2.111×10 ⁵ y)	
72.20 4	0.56 13	²²⁶ Ac(29 h)	230.37, 158.18, 574.8	89.65 7		⁹⁹ Tc(6.01 h)	322.41, 232.72
72.20 4	0.60 4	²³⁰ U(20.8 d)	154.23, 230.37, 158.18	89.65 7	29.0 13	⁹⁹ Rh(16.1 d)	528.24, 353.05, 322.41
72.500 4	0.261 14	¹⁴⁵ Pr(5.984 h)	748.278, 675.795, 978.969	89.9 2	79.5 16	¹²⁰ Sb(5.76 d)	1171.3, 1023.1, 197.3
72.500 4	1.8	¹⁴⁵ Pm(17.7 y)	67.22	89.944 5	0.94 6	²³¹ Th(25.52 h)	25.646, 84.216, 81.227
73.039 12	3.2 5	¹⁹³ Os(30.5 h)	139.03, 460.50, 557.36	90.596 7	0.563 19	¹²² Xe(20.1 h)	350.065, 148.612, 416.633
74.56711 22	10.2 2	¹⁶¹ Tb(6.88 d)	25.65150, 48.91562, 57.196	91.105 2	28	¹⁴⁷ Nd(10.98 d)	531.016, 319.411, 439.895
74.664 1	68	²⁴³ Am(7370 y)	43.533, 117.84, 86.71	91.266 5	7.0 1	⁶⁷ Cu(61.83 h)	184.577, 93.311, 300.219
74.78 2	36.5 8	¹⁰⁰ Pd(3.63 d)	84.02, 126.05, 42.10	92.38 1	2.81 15	²³⁴ Th(24.10 d)	63.29, 92.80, 112.81
75.12 5	0.035 3	²²⁹ Pa(1.50 d)	40.09, 64.70, 115.55	92.80 2	2.77 15	²³⁴ Th(24.10 d)	63.29, 92.38, 112.81
75.4226 3	0.350 16	¹⁵³ Sm(46.27 h)	103.1807, 69.67340, 97.4316	93.124 20	1.45 3	¹⁰⁷ Cd(6.50 h)	828.93, 796.462, 324.81
75.878 5	6.08 8	¹⁷¹ Lu(8.24 d)	739.78, 19.394, 667.404	93.311 5	16.1 2	⁶⁷ Cu(61.83 h)	184.577, 91.266, 300.219
76.073 10	1.17×10 ⁻⁸ 20	¹⁴⁷ Pm(2.6234 y)	121.220, 197.299	93.311 5	39.2 10	⁶⁷ Ga(3.2612 d)	184.577, 300.219, 393.529
76.21 4	13	²⁰⁰ Pt(12.5 h)	135.90, 243.71, 59.97	93.326 2	4.5	¹⁸⁰ Ta(8.152 h)	
76.471 1	5.9 3	¹⁷⁴ Lu(3.31 y)	1241.847, 1318.296, 1065.04	94.33 3	7.6 6	¹⁸⁹ Pt(10.87 h)	721.41, 568.84, 243.37
76.471 1	0.0638 16	¹⁷⁴ Lu(142 d)	272.918, 992.128, 176.645	94.66 5	0.6 2	²³⁷ Np(2.14×10 ⁶ y)	29.374, 86.477, 143.249
77.10 10	†2.11×10 ⁻⁵ 7	²⁴¹ Pu(14.35 y)	148.567, 103.680, 159.955	95	†100	²²⁸ Pa(22 h)	310, 240, 280
77.351 2	17.0 16	¹⁹⁷ Pt(18.3 h)	191.437, 268.78	96 3	0.012	²⁴⁶ Cf(35.7 h)	42.13, 146
77.351 2	†0.024 4	¹⁹⁷ Hg(23.8 h)	279.01, 130.2, 201.6	96.28 6	0.036 3	²⁵² Fm(25.39 h)	41.53
77.351 2	18.0 4	¹⁹⁷ Hg(64.14 h)	191.437, 268.78	96.73 8	0.20 7	¹¹¹ Ag(7.45 d)	342.118, 245.422, 620.3
78.337	96	⁴⁴ Ti(49 y)	67.875, 146.212	97.134 1	0.020 3	²³³ U(1.592×10 ⁵ y)	42.44, 54.699, 29.192
78.6 3	0.0039	¹⁷⁰ Tm(128.6 d)		97.4 2	4.2 8	¹⁸⁵ Ir(14.4 h)	254.4, 1828.8, 60.0
78.63 3	11.87 17	¹⁷³ Lu(1.37 y)	272.105, 100.724, 171.393	97.4316 4	0.847 11	¹⁵³ Sm(46.27 h)	103.1807, 69.67340, 75.4226
78.7435 8	6.5 5	¹⁷² Tm(63.6 h)	1093.657, 1387.093, 1529.72	97.4316 4	30	¹⁵³ Gd(241.6 d)	103.1807, 69.67340, 83.3676

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
98.85 5	10.9 5	¹⁹⁵ Au(186.09 d)	129.70, 30.898, 211.407	123.071 1	43 8	¹⁵⁴ Tb(22.7 h)	247.925, 346.643, 1419.81
98.860 13	1.5 2	²⁴⁰ Am(50.8 h)	987.76, 888.80, 42.824	123.3790 20	0.45 5	¹⁷⁹ Lu(4.59 h)	214.335, 214.930, 337.713
98.860 13	0.0001470 154	²⁴⁴ Cm(18.10 y)	42.824, 152.63, 554.60	123.672 13	83 3	¹⁷³ Hf(23.6 h)	296.974, 139.634, 311.239
98.91 1	4.29 13	¹⁵⁸ Tb(180 y)	218.21	123.805 3	28.97 23	¹³¹ Ba(11.50 d)	496.326, 216.078, 373.246
99.383 4	4.6 8	²⁴⁴ Am(10.1 h)	743.971, 897.848, 153.863	124.015 6	9.1 3	¹⁷¹ Er(7.516 h)	308.31, 295.901, 111.621
99.63 5	0.62 3	²²⁵ Ac(10.0 d)	99.91, 150.04, 188.00	124.70 5	11.37 13	¹²⁷ Cs(6.25 h)	411.95, 462.31, 587.01
99.659 2	10.51 10	¹⁵³ Dy(6.4 h)	80.723, 213.754, 254.259	125.3581 9	0.019	¹⁸⁵ W(75.1 d)	
99.853 3	0.00735 8	²³⁸ Pu(87.74 y)	43.498, 152.720, 766.38	125.812 3	11.3 6	¹⁷² Hf(1.87 y)	23.9331, 67.35, 81.7515
99.91 5	1.01 5	²²⁵ Ac(10.0 d)	150.04, 99.63, 188.00	126.05 3	8.10 23	¹⁰⁰ Pd(3.63 d)	84.02, 74.78, 42.10
100	†0.010	²²⁷ Ac(21.773 y)	69.21, 160.26, 147.48	127.164 3	16.7 3	⁵⁷ Ni(35.60 h)	1377.63, 1919.52, 1757.55
100.4 3	0.013	²⁵² Cf(2.645 y)	43.38, 155.0	127.23 3	73	¹⁰¹ Rh(3.3 y)	197.6, 324.8, 295.0
100.70 5	0.017	¹⁸⁰ Hf(5.5 h)		127.23 3	†0.64 14	¹⁰¹ Rh(4.34 d)	306.85, 545.06, 179.62
100.724 20	5.24 9	¹⁷³ Lu(1.37 y)	272.105, 78.63, 171.393	129.065 3	0.0686 8	²³² U(68.9 y)	57.762, 270.243, 327.995
101.90 3	0.0025 4	²⁴² Cm(162.8 d)	44.08, 157.42, 561.11	129.297 2	0.00631 6	²³⁹ Pu(24.110 y)	51.624, 38.661, 375.045
102.263 15	6.0 3	¹⁵³ Tb(2.34 d)	212.038, 170.504, 109.758	129.419 8	29.0 17	¹⁹¹ Os(15.4 d)	82.407, 41.86, 47.05
102.32 5	1.88 13	²⁵² Es(471.7 d)	785.09, 139.03, 924.12	129.70 5	0.817 22	¹⁹⁵ Au(186.09 d)	98.85, 30.898, 211.407
102.82 2	0.85 6	²³⁶ Np(1.54×10 ⁵ y)	158.35, 44.63	129.820 12	0.300 8	⁸⁵ Kr(4.480 h)	151.159, 450.85, 731.812
103.1 1	0.39	²⁴⁵ Bk(4.94 d)	252.80, 380.8, 385.0	129.820 12	>4.3×10 ⁻⁷	⁸⁵ Kr(10.756 y)	514.0067, 362.81, 151.159
103.14 17	2.32 8	⁷² Zn(46.5 h)	145.04, 191.96, 16.4	130.2 1	†0.223 8	¹⁹⁷ Hg(23.8 h)	279.01, 201.6, 77.351
103.1807 3	31.4 4	¹⁵³ Sm(46.27 h)	69.67340, 97.4316, 75.4226	130.414 15	†0.209 15	¹³⁴ Ce(75.9 h)	162.306, 39.08, 300.884
103.1807 3	21.4 5	¹⁵³ Gd(241.6 d)	97.4316, 69.67340, 83.3676	130.803 10	17.9 4	¹³³ Ce(4.9 h)	477.22, 510.36, 58.39
103.50 4	0.0078 8	²⁴² Pu(3.733×10 ⁵ y)	44.915, 158.80	131.30 1	18	²³⁴ Pa(6.70 h)	946.00, 883.24, 569.5
103.557 7	0.81 16	¹⁸⁰ Ta(8.152 h)		131.613 4	0.1355 19	²²⁸ Th(1.9131 y)	84.373, 215.985, 166.411
103.680 5	0.0001017 12	²⁴¹ Pu(14.35 y)	148.567, 77.10, 159.955	132.413 7	3.86 20	²⁴¹ Cm(32.8 d)	471.805, 430.634, 165.049
104.0 2	0.0102 10	²⁵⁴ Es(39.3 h)	211.80, 177.30, 71.30	132.99 3	2.77 14	²⁴⁵ Cm(8500 y)	174.94, 41.95, 189.82
104.1 10		²³⁶ Np(1.54×10 ⁵ y)	160.308, 104.234, 45.242	133.024 17	43.3 5	¹⁸¹ Hf(42.39 d)	482.182, 345.916, 136.266
104.234 6		²³⁶ Np(22.5 h)	642.35, 687.59, 538.11	133.515 21	11.09 11	¹⁴⁴ Ce(284.893 d)	80.120, 40.98, 33.568
104.234 6	7.2 3	²³⁶ Np(1.54×10 ⁵ y)	160.308, 45.242, 104.1	134.243 6	8.85 16	¹⁸⁷ W(23.72 h)	685.774, 479.531, 72.001
104.234 6	0.00708 10	²⁴⁰ Pu(6563 y)	45.242, 160.308, 212.46	135.34 4	2.565 18	²⁰¹ Tl(72.912 h)	167.43, 32.19, 30.60
104.4 1	0.62 5	²⁵⁷ Fm(100.5 d)	241.0, 179.4, 61.6	135.6 1	0.47 5	⁸⁶ Zr(16.5 h)	242.80, 29.10, 612.00
105.305 3	21.2 5	¹⁵⁵ Eu(4.7611 y)	86.545, 45.2972, 60.0086	135.90 9	3.24 19	²⁰⁰ Pt(12.5 h)	76.21, 243.71, 59.97
105.305 3	25	¹⁵⁵ Tb(5.32 d)	86.545, 180.103, 262.322	136.0008 6	58.3 4	⁷⁵ Se(119.779 d)	264.6584, 279.5441, 121.1166
106 1	†0.44	²¹⁰ At(8.1 h)	82.802, 167, 141.2	136.266 13	5.85 19	¹⁸¹ Hf(42.39 d)	482.182, 133.024, 345.916
106.125 2	27.2 4	²³⁹ Np(2.3565 d)	277.599, 228.183, 209.753	136.266 13	0.0311 10	¹⁸¹ W(121.2 d)	6.238, 152.315
107.9322 4	11.0 4	¹⁸³ Ta(5.1 d)	246.0591, 353.9912, 161.3467	136.4743 5	10.68 8	⁵⁷ Co(271.79 d)	122.0614, 14.41300, 692.03
108.088 10	24.3 9	¹⁵¹ Tb(17.609 h)	287.357, 251.863, 587.46	137.155 7	8.22 8	¹⁸⁶ Re(90.64 h)	767.508, 630.354, 333.4
108.96 5	0.012	²³⁶ Pu(2.858 y)	47.574, 166.0, 643.5	137.155 7	42 3	¹⁸⁶ Ir(16.64 h)	296.911, 434.849, 773.276
109.69 4	0.024	²⁴² Am(141 y)	49.367, 86.68, 163.24	139.03 11	4.27 20	¹⁹³ Os(30.5 h)	460.50, 73.039, 557.36
109.758 15	6.4 3	¹⁵³ Tb(2.34 d)	212.038, 170.504, 102.263	139.03 5	13.9 10	²⁵² Es(471.7 d)	785.09, 924.12, 102.32
109.77987 6	0.0013 3	¹⁶⁹ Er(9.40 d)	8.41031, 118.19018	139.1 2	44.6 20	¹⁸⁴ Hf(4.12 h)	344.9, 181.0, 41.4
109.77987 6	17.47 18	¹⁶⁹ Yb(32.026 d)	63.12077, 197.95788, 177.21402	139.634 8	12.7 3	¹⁷³ Hf(23.6 h)	123.672, 296.974, 311.239
111.208 4	23.7 10	¹⁸⁴ Ta(8.7 h)	414.03, 252.848, 920.932	140.511 1	4.52 23	⁹⁹ Mo(65.94 h)	739.50, 181.063, 777.921
111.208 4	17.1 6	¹⁸⁴ Re(38.0 d)	903.279, 792.071, 894.757	140.86 2	0.018 3	²³² Th(1.405×10 ¹⁰ y)	63.83
111.621 4	20.5 8	¹⁷¹ Er(7.516 h)	308.31, 295.901, 124.015	141.178 15	66.8 7	⁹⁰ Nb(14.60 d)	1129.224, 2318.968, 2186.242
111.76 8	1.74 4	¹³² Te(3.204 d)	228.16, 49.72, 116.30	141.2	†0.16	²¹⁰ At(8.1 h)	82.802, 106, 167
112.36 6	96.0 6	⁴⁸ Cr(21.56 h)	308.25, 420.5	142.652 2	1.02 4	⁵⁹ Fe(44.503 d)	1099.251, 1291.596, 192.349
112.75 2	0.019 2	²³⁶ U(2.342×10 ⁷ y)	49.369	143.249 20	0.43 2	²³⁷ Np(2.14×10 ⁶ y)	29.374, 86.477, 94.66
112.81 5	0.277 20	²³⁴ Th(24.10 d)	63.29, 92.38, 92.80	143.764 2	10.96 8	²³⁵ U(7.038×10 ⁸ y)	185.712, 163.358, 205.309
112.9498 5	6.4 3	¹⁷⁷ Lu(6.734 d)	208.3664, 321.3162, 249.6741	143.87 1	0.0486 22	²³⁰ Th(7.538×10 ⁴ y)	67.67, 253.73, 186.05
112.9498 5	7.2 8	¹⁷⁷ Ta(56.56 h)	208.3664, 1057.8, 745.9	144.232 10	3.22 7	²²³ Ra(11.435 d)	269.459, 154.21, 323.871
113.5 1	0.0102 15	²³⁸ U(4.468×10 ⁹ y)	49.55	144.863 5	0.328 11	¹⁷⁵ Yb(4.185 d)	396.329, 282.522, 113.805
113.805 4	1.88 3	¹⁷⁵ Yb(4.185 d)	396.329, 282.522, 144.863	144.99 6	0.192 24	²⁵³ Fm(3.00 d)	271.8, 62.47, 405
113.94 5	40 5	¹³⁹ Nd(5.50 h)	737.96, 982.2, 708.06	145.04 13	83	⁷² Zn(46.5 h)	191.96, 16.4, 103.14
114.3152 16	2.6 4	¹⁸² Hf(9×10 ⁹ y)	270.4031, 156.088, 172.5708	145.252 10	4.29 13	¹²⁷ Xe(36.4 d)	202.860, 172.132, 374.991
114.463 5	20.63 8	¹⁸³ Os(13.0 h)	381.768, 167.844, 851.474	145.4405 28	48.2 3	¹⁴¹ Ce(32.501 d)	
114.71 2	44.0 5	¹⁴⁶ Gd(48.27 d)	154.57, 115.51, 576.0	145.544 10		²⁴¹ Cm(32.8 d)	
115.183 5	0.592 7	²¹² Pb(10.64 h)	238.632, 300.087, 415.2	146 5	0.0035	²⁴⁶ Cf(35.7 h)	42.13, 96
115.51 2	44.0 5	¹⁴⁶ Gd(48.27 d)	154.57, 114.71, 576.0	146.212	0.089 6	⁴⁴ Ti(49 y)	78.337, 67.875
115.55 5	0.0182 14	²²⁹ Pa(1.50 d)	40.09, 64.70, 75.12	146.345 2	0.098 6	²²⁹ Pa(1.50 d)	118.968, 117.159, 42.44
116.30 8	1.96 5	¹³² Te(3.204 d)	228.16, 49.72, 111.76	146.45 5	0.21 3	¹⁴⁶ Pm(5.53 y)	453.88, 735.72, 589.3
117.159 2	0.047 3	²²⁹ Pa(1.50 d)	118.968, 146.345, 42.44	146.4 5	0.012 5	²⁴³ Bk(4.5 h)	187.1, 536, 41
117.84 2	0.57 8	²⁴³ Am(7370 y)	74.664, 43.533, 86.71	147.48 4	†0.0034 3	²²⁷ Ac(21.773 y)	100, 69.21, 160.26
118.19018 18	0.00014 4	¹⁶⁹ Er(9.40 d)	8.41031, 109.77987	147.63 2	37.7 10	²⁰⁰ Pb(21.5 h)	257.17, 235.63, 268.38
118.968 2	0.130 6	²²⁹ Pa(1.50 d)	146.345, 117.159, 42.44	148.567 10	0.0001855 20	²⁴¹ Pu(14.35 y)	103.680, 77.10, 159.955
120.17 10	19	¹⁷⁰ Hf(16.01 h)	164.78, 620.7, 572.9	148.612 4	2.62 9	¹²² Xe(20.1 h)	350.065, 416.633, 90.596
120.90 2	0.0342 5	²³⁴ U(2.455×10 ⁵ y)	53.20, 454.95, 508.20	149.735 3	48.2 3	¹⁴⁹ Gd(9.28 d)	298.634, 346.651, 748.601
121.1166 16	17.14 18	⁷⁵ Se(119.779 d)	264.6584, 136.0008, 279.5441	150.04 2	0.80 3	²²⁵ Ac(10.0 d)	99.91, 99.63, 188.00
121.220 17	0.0028	¹⁴⁷ Pm(2.6234 y)	197.299, 76.073	150.059 3	10.8 5	²³² Pa(1.31 d)	969.315, 894.351, 453.655
121.220 17	22.9 8	¹⁴⁷ Eu(24.1 d)	197.299, 677.516, 1077.043	150.824 17	0.0028	¹¹¹ In(2.8049 d)	245.422, 171.28
121.7824 4	28.4 3	¹⁵² Eu(13.542 y)	1408.011, 964.131, 1112.116	151.159 6	75.0 4	⁸⁵ Kr(4.480 h)	129.820, 450.85, 731.812
121.7824 4	7.21 22	¹⁵² Eu(9.274 h)	841.586, 963.37, 1389.00	151.159 6	2.2×10 ⁻⁶ 13	⁸⁵ Kr(10.756 y)	514.0067, 362.81, 129.820
122.0 1	†100	¹⁷¹ Hf(12.1 h)	662.2, 347.18, 1071.8	151.159 6	0.0012 9	⁸⁵ Sr(64.84 d)	514.0067, 868.5, 362.81
122.0614 4	85.60 17	⁵⁷ Co(271.79 d)	136.4743, 14.41300, 692.03	152.315 17	0.0083 3	¹⁸¹ W(121.2 d)	6.238, 136.266
122.370 22	64.2 23	⁹⁰ Mo(5.67 h)	257.34, 203.13, 323.20	152.63 2	<4.9×10 ⁻⁷	²⁴⁴ Cm(18.10 y)	42.824, 98.860, 554.60
122.58 6	†0.56 2	¹⁸⁶ Re(90.64 h)		152.720 2	0.000937 10	²³⁸ Pu(87.74 y)	43.498, 99.853, 766.38
123.071 1	40.79 25	¹⁵⁴ Eu(8.593 y)	1274.436, 723.304, 1004.725	152.8 2	0.91 10	²⁵¹ Es(33 h)	177.7, 163.8, 34.0
123.071 1	30 4	¹⁵⁴ Tb(9.4 h)					

D-4

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
153.863 2	16 3	²⁴⁴ Am(10.1 h)	743.971, 897.848, 99.383	182.20 20	1.84 18	¹⁵⁷ Dy(8.14 h)	326.16, 83.01, 60.82
154.21 3	5.62 14	²²³ Ra(11.435 d)	269.459, 323.871, 144.232	184.285 1	17.45 16	¹⁶⁸ Tm(93.1 d)	198.241, 815.990, 447.515
154.23 3	0.125 7	²³⁰ U(20.8 d)	72.20, 230.37, 158.18	184.410 6	72.6 7	¹⁶⁶ Ho(1.20×10 ³ y)	810.276, 711.683, 280.459
154.57 2	47	¹⁴⁶ Gd(48.27 d)	115.51, 114.71, 576.0	184.410 6	16.1 3	¹⁶⁶ Tm(7.70 h)	778.817, 2052.36, 1273.540
155.0 4	0.0019	²⁵² Cf(2.645 y)	43.38, 100.4	184.564 4	3.37 6	¹⁵⁵ Dy(9.9 h)	226.918, 1089.8, 1090.0
155.032 12	14.9 5	¹⁸⁸ Re(16.98 h)	632.99, 477.99, 931.34	184.577 10	48.7 3	⁶⁷ Cu(61.83 h)	93.311, 91.266, 300.219
155.032 12	29.7 24	¹⁸⁸ Ir(41.5 h)	2214.62, 632.99, 477.99	184.577 10	21.2 3	⁶⁷ Ga(3.2612 d)	93.311, 300.219, 393.529
156.088 2	7.0 10	¹⁸² Hf(9×10 ⁶ y)	270.4031, 114.3152, 172.5708	184.810 25	0.0042 11	¹⁵⁴ Eu(8.593 y)	81.99
157.2 3	7	¹⁹² Hg(4.85 h)	274.8, 306.5, 186.4	185.712 1	57.2 5	²³⁸ U(7.038×10 ⁸ y)	143.764, 163.358, 205.309
157.42 5	0.0014 2	²⁴² Cm(162.8 d)	44.08, 101.90, 561.11	185.85 3	1.89 4	¹⁸⁹ Re(29.3 h)	216.663, 219.395, 245.09
158.18 3	17.5 5	²²⁶ Ac(29 h)	230.37, 72.20, 574.8	186.05 1	4.8 3	²²⁶ Ac(29 h)	253.73, 67.67
158.18 3	0.070 5	²³⁰ U(20.8 d)	72.20, 154.23, 230.37	186.05 1	0.0088 4	²³⁰ Th(7.538×10 ⁴ y)	67.67, 143.87, 253.73
158.260 4	0.290 10	¹³⁵ Xe(9.14 h)	249.770, 608.151, 408.009	186.10 10	3.50 5	²²⁶ Ra(1600 y)	262.27, 600.66, 414.60
158.35 2	4.0	²³⁶ Np(1.54×10 ⁵ y)	102.82, 44.63	186.17 3	10.1 6	¹⁹³ Au(17.65 h)	255.57, 268.22, 173.52
158.37947 9	40.0 3	¹⁹⁹ Au(3.139 d)	208.20597, 49.82680	186.4 3	3.3 6	¹⁹² Hg(4.85 h)	274.8, 157.2, 306.5
158.37947 9	4.96 25	¹⁹⁹ Tl(7.42 h)	455.46, 208.20597, 247.26	186.718 2	52.4 21	¹⁹⁰ Ir(11.78 d)	605.24, 518.55, 557.972
158.38 3	†98.8 10	⁵⁶ Ni(5.9 d)	811.85, 749.95, 269.50	187.1 5	0.060 15	²⁴³ Bk(4.5 h)	536, 146.4, 41
158.80 8	0.00045 15	²⁴² Pu(3.733×10 ⁵ y)	44.915, 103.50	187.59 10	19.4 10	¹⁸⁸ Pt(10.2 d)	195.05, 381.43, 423.34
158.97 5	83	¹²³ Ir(13.27 h)	528.96, 440.02, 538.54	188.00 5	0.54 3	²²⁵ Ac(10.0 d)	99.91, 150.04, 99.63
159.369 20	67.9 15	⁴⁷ Sc(3.345 d)		188.418 4	54	¹²⁵ Xe(16.9 h)	243.378, 54.968, 453.796
159.955 20	†6.54×10 ⁻⁶ 15	²⁴¹ Pu(14.35 y)	148.567, 103.680, 77.10	189.7 1	0.24 1	²⁴⁰ U(14.1 h)	44.10, 66.5, 169.2
160.26 5	†0.0063 6	²²⁷ Ac(21.773 y)	100, 69.21, 147.48	189.82 6	0.193 12	²⁴⁵ Cm(8500 y)	174.94, 132.99, 41.95
160.308 3	32	²³⁶ Np(1.54×10 ⁵ y)	104.234, 45.242, 104.1	190.38 6	64.0 14	⁸¹ Rb(4.576 h)	446.15, 510.31, 456.76
160.308 3	0.000402 3	²⁴⁰ Pu(6563 y)	45.242, 104.234, 212.46	191.2137 15	20.6 5	¹⁶⁹ Lu(34.06 h)	960.622, 1449.74, 889.753
160.33 5	0.00191 9	¹²³ Sn(129.2 d)	1088.64, 1030.23, 1021.00	191.437 10	3.7	¹⁹⁷ Pt(18.3 h)	77.351, 268.78
160.613 8	0.066 5	¹³³ Xe(5.243 d)	80.997, 79.623, 302.853	191.437 10	0.608 20	¹⁹⁷ Hg(64.14 h)	77.351, 268.78
161.269 9	6.49 12	¹⁸⁴ Re(169 d)	252.848, 216.548, 920.932	191.96 9	9.37 17	⁷² Zn(46.5 h)	145.04, 16.4, 103.14
161.3467 5	8.9 3	¹⁸³ Ta(5.1 d)	246.0591, 353.9912, 107.9322	192.349 5	3.08 10	⁵⁹ Fe(44.503 d)	1099.251, 1291.596, 142.652
162.306 10	†0.230 16	¹³⁴ Ce(75.9 h)	130.414, 39.08, 300.884	193.509 4	4.4	²²⁹ Th(7340 y)	210.853, 86.40, 86.25
162.3219 5	23.3 4	¹⁸³ Re(70.0 d)	46.4839, 291.7238, 208.8057	195.0 1	22.6 10	²⁰⁹ At(5.41 h)	545.0, 781.9, 790.2
162.660 1	6.21 8	¹⁴⁰ Ba(12.752 d)	537.261, 29.9640, 304.849	195.05 10	18.6 10	¹⁸⁸ Pt(10.2 d)	187.59, 381.43, 423.34
162.624 4	0.024	²⁴² Am(141 y)	49.367, 86.68, 109.69	197.299 12	3.4×10 ⁻⁷ 6	¹⁴⁷ Pm(2.6234 y)	121.220, 76.073
163.358 2	5.08 4	²³⁵ U(7.038×10 ⁸ y)	185.712, 143.764, 205.309	197.299 12	27	¹⁴⁷ Eu(24.1 d)	121.220, 677.516, 1077.043
163.8 2	0.10	²⁵¹ Es(33 h)	177.7, 152.8, 34.0	197.3 3	87.0 11	¹²⁰ Sb(5.76 d)	1171.3, 1023.1, 89.9
164.61 2	1.852 18	²³⁷ U(6.75 d)	59.537, 208.00, 26.345	197.6 2	70.8 15	¹⁰¹ Rh(3.3 y)	127.23, 324.8, 295.0
164.78 10	33	¹⁷⁰ Hf(16.01 h)	620.7, 120.17, 572.9	197.95788 6	35.8 3	¹⁶⁹ Yb(32.026 d)	63.12077, 177.21402, 109.77987
164.8 2	0.0084 18	²⁴⁵ Bk(4.94 d)	205.879, 471.805, 430.634	198.241 1	52.39 16	¹⁶⁸ Tm(93.1 d)	815.990, 447.515, 184.285
164.98 2	26.4 3	¹⁴⁹ Tb(4.118 h)	352.24, 388.57, 652.12	199.2132 10	40.9 22	¹⁵⁶ Tb(5.35 d)	534.318, 1222.36, 88.9667
165.049 8	2.97 20	²⁴¹ Cm(32.8 d)	471.805, 430.634, 132.413	199.50 5	0.53 3	¹³⁸ Nd(5.04 h)	325.76, 341.65, 215.31
165.8452 24	12.7 20	¹⁵⁶ Sm(9.4 h)	87.4897, 203.818, 37.9681	200.38 4	0.79 8	¹⁹⁵ Hg(41.6 h)	261.75, 560.27, 387.87
165.864 6	80	¹³⁹ Ce(137.640 d)		201.3112 7	0.472 6	¹⁹² Ir(73.831 d)	205.79549, 484.5780, 374.4852
166.0 3	0.00066	²³⁶ Pu(2.858 y)	47.574, 108.96, 643.5	201.6 3	†0.073 11	¹⁹⁷ Hg(23.8 h)	279.01, 130.2, 77.351
166.411 4	0.1075 15	²²⁸ Th(1.9131 y)	84.373, 215.985, 131.613	201.83 3	86.5	¹⁷⁶ Lu(3.78×10 ¹⁰ y)	306.78, 88.34, 400.99
167 2	†0.28	²¹⁰ At(8.1 h)	82.802, 106, 141.2	201.83 1 h	6	¹⁷⁶ Ta(8.09 h)	1159.28, 88.34, 1224.93
167.43 7	10	²⁰¹ Tl(72.912 h)	135.34, 32.19, 30.60	202.860 10	0.0580 21	¹²⁷ Te(9.35 h)	417.95, 360.32, 215.17
167.75 2	8.3 5	¹⁵¹ Pm(28.40 h)	340.08, 275.21, 717.72	202.860 10	68	¹²⁷ Xe(36.4 d)	172.132, 374.991, 145.252
167.844 12	8.81 8	¹⁸³ Os(13.0 h)	381.768, 114.463, 851.474	203.13 10	6.4 5	⁹⁰ Mo(5.67 h)	257.34, 122.370, 323.20
167.90 2	0.07	²¹¹ Rn(14.6 h)	68.573, 236.48	203.5 2	74	¹⁰⁹ In(4.2 h)	623.7, 1148.9, 426.25
168.684 2	99.2	⁵² Fe(8.275 h)	377.738, 1039.902	203.818 3	20.6 20	¹⁵⁶ Sm(9.4 h)	87.4897, 165.8452, 37.9681
169.2 1	0.115 8	²⁴⁰ U(14.1 h)	44.10, 189.7, 66.5	204.117 2	†2.33 7	⁹⁵ Nb(86.6 h)	582.082, 786.198, 820.624
169.26 4	0.44 3	¹³⁷ Ce(34.4 h)	824.82, 762.3, 835.38	204.117 2	0.028 9	⁹⁵ Nb(34.975 d)	765.794, 561.67
170.504 20	6.8 4	¹⁵³ Tb(2.34 d)	212.038, 109.758, 102.263	204.117 2	63.25 13	⁹⁵ Tc(61 d)	582.082, 835.149, 786.198
171.28 3	90	¹¹¹ In(2.8049 d)	245.422, 150.824	205.309 2	5.01 5	²³⁵ U(7.038×10 ⁸ y)	185.712, 143.764, 163.358
171.393 13	2.90 11	¹⁷³ Lu(1.37 y)	272.105, 78.63, 100.724	205.79549 6	3.300 17	¹⁹² Ir(73.831 d)	484.5780, 374.4852, 201.3112
172.132 10	25.5 8	¹²⁷ Xe(36.4 d)	202.860, 374.991, 145.252	205.879 13	0.040 6	²⁴⁵ Bk(4.94 d)	471.805, 164.8, 430.634
172.5708 22	0.20 4	¹⁸² Hf(9×10 ⁶ y)	270.4031, 156.088, 114.3152	207.4 3	14.0 8	¹⁷⁵ Ta(10.5 h)	348.5, 266.9, 81.5
172.6 2	†49	²⁵⁶ Es(7.6 h)	861.8, 231.1, 1092.9	207.801 5	41 6	¹⁶⁷ Tm(9.25 d)	57.0723, 531.54, 264.9
173.52 5	2.9	¹⁹³ Au(17.65 h)	186.17, 255.57, 268.22	207.849 5	0.0080 16	¹⁸⁸ W(69.4 d)	290.669, 227.083, 63.582
174.70 1	2.96 6	¹⁵¹ Gd(124 d)	153.56, 243.28, 21.531	208.00 1	21.14 23	²³⁷ U(6.75 d)	59.537, 26.345, 164.61
174.94 4	10	²⁴⁵ Cm(8500 y)	132.99, 41.95, 189.82	208.20597 11	8.732 12	¹⁹⁹ Au(3.139 d)	158.37947, 49.82680
174.954 5	82.00 25	⁷¹ As(65.28 h)	1095.490, 499.876, 326.785	208.20597 11	12.3 6	¹⁹⁹ Tl(7.42 h)	455.46, 247.26, 158.37947
175.361 5	7.48 9	⁴⁸ Sc(43.67 h)	1312.096, 983.517, 1037.599	208.3664 5	11.0 6	¹⁷⁷ Lu(6.734 d)	112.9498, 321.3162, 249.6741
176.6 1	17.7 15	²⁵¹ Cf(898 y)	227.0, 285.0, 61.5	208.3664 5	57.7 11	¹⁷⁷ Lu(160.4 d)	228.4838, 378.5029, 418.5391
176.645 2	0.470 11	¹⁷⁴ Lu(142 d)	272.918, 992.128, 76.471	208.3664 5	0.94 8	¹⁷⁷ Ta(56.56 h)	112.9498, 1057.8, 745.9
177.21402 6	22.16 18	¹⁶⁹ Yb(32.026 d)	63.12077, 197.95788, 109.77987	208.8057 6	2.95 5	¹⁸³ Re(70.0 d)	162.3219, 46.4839, 291.7238
177.30 10	0.056 6	²⁵⁴ Es(39.3 h)	211.80, 71.30, 104.0	209.753 2	3.42 5	²³⁸ Np(2.3565 d)	106.125, 277.599, 228.183
177.7 2	2.4	²⁵¹ Es(33 h)	152.8, 163.8, 34.0	209.753 2	3.50 20	²³⁹ Am(11.9 h)	277.599, 228.183, 226.378
179.4 1	8.7 7	²⁵⁷ Fm(100.5 d)	241.0, 61.6, 104.4	209.753 2	3.29 10	²⁴³ Cm(29.1 y)	277.599, 228.183, 285.460
179.62 4	†0.58 6	¹⁰¹ Rh(4.34 d)	306.85, 545.06, 127.23	210.853 4	2.8 3	²²⁹ Th(7340 y)	193.509, 86.40, 86.25
179.94 2	9.7 5	²⁴⁶ Pu(10.84 d)	43.81, 223.75, 27.58	211.03 3	30.8 9	⁷⁷ Ge(11.30 h)	264.44, 215.50, 416.33
180.103 1	7.45 15	¹⁵⁵ Tb(5.32 d)	86.545, 105.305, 262.322	211.407 2	0.0109 11	¹⁹⁵ Au(186.09 d)	98.85, 129.70, 30.898
180.11 4	1.90 9	¹⁹⁵ Hg(9.9 h)	779.80, 61.46, 585.13	211.80 10	0.096 10	²⁵⁴ Es(39.3 h)	177.30, 71.30, 104.0
180.230 11	33.5 16	¹⁸² Os(22.10 h)	510.056, 263.285, 55.506	212.038 15	31.0 16	¹⁵³ Tb(2.34 d)	170.504, 109.758, 102.263
181.0 2	13.8 13	¹⁸⁴ Hf(4.12 h)	139.1, 344.9, 41.4	212.46 5	0.000029 3	²⁴⁰ Pu(6563 y)	45.242, 104.234, 160.308
181.063 8	6.08 9	⁹⁹ Mo(65.94 h)	739.50, 140.511, 777.921	213.754 5	10.90 22	¹⁵³ Dy(6.4 h)	80.723, 99.659, 254.259
181.3 5	0.41 11	²⁵⁷ Md(5.52 h)	371.4, 325.1, 388.5	214.335 3	11.3 11	¹⁷⁹ Lu(4.59 h)	214.930, 123.3790, 337.7

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
215.31 6	0.28 3	¹³⁸ Nd(5.04 h)	325.76, 199.50, 341.65	255.11 2	0.236 7	¹³⁹ Pr(4.41 h)	1347.33, 1630.67, 1375.56
215.50 3	28.6 9	⁷⁷ Ge(11.30 h)	264.44, 211.03, 416.33	255.57 4	6.7 6	¹⁹³ Au(17.65 h)	186.17, 268.22, 173.52
215.718 24	86	⁹⁷ Ru(2.9 d)	324.48, 569.31, 460.57	255.87 2	\dagger 7.5	²⁰⁰ Au(18.7 h)	497.77, 367.943, 579.298
215.985 5	0.263 3	²²⁸ Th(1.9131 y)	84.373, 131.613, 166.411	256.25 2	\dagger 7.0 4	²²⁷ Th(18.72 d)	235.971, 50.13, 329.851
216.078 8	19.66 23	¹³¹ Ba(11.50 d)	496.326, 123.805, 373.246	257.17 2	4.46 13	²⁰⁰ Pb(21.5 h)	147.63, 235.63, 268.38
216.548 9	9.43 20	¹⁸⁴ Re(169 d)	252.848, 920.932, 161.269	257.34 4	78.3	⁹⁰ Mo(5.67 h)	122.370, 203.13, 323.20
216.663 24	5.50 14	¹⁸⁹ Re(24.3 h)	219.395, 245.09, 185.85	257.97 5	61 6	¹⁹³ Hg(11.8 h)	407.63, 573.25, 932.37
217.6 3	\dagger 88	²⁴⁴ Bk(4.35 h)	891.5, 921.5, 490.5	258.8 1	1.64 3	¹¹³ Ag(5.37 h)	298.58, 316.3, 672.3
217.940 18	0.8	²³¹ U(4.2 d)	25.646, 84.216, 58.570	260.48 3	0.7	²⁰⁹ Po(102 y)	262.81
218.21 1	0.933 18	¹⁵⁸ Tb(180 y)	98.91	260.890 30	1.94 1	¹¹⁵ Cd(53.46 h)	336.240, 527.900, 492.3
219.395 21	4.54 10	¹⁸⁹ Re(24.3 h)	216.663, 245.09, 185.85	261.29 10	13	⁷⁹ Kr(35.04 h)	397.54, 606.09, 306.47
220.94 2	0.0541 6	¹³⁵ La(19.5 h)	480.51, 874.51, 587.83	261.75 4	30.9 25	¹⁹⁵ Hg(41.6 h)	560.27, 387.87, 200.38
223.75 2	23.5 18	²⁴⁶ Pu(10.84 d)	43.81, 179.94, 27.58	262.27 5	0.0049 5	²²⁶ Ra(1600 y)	186.10, 600.66, 414.60
226.01 4	0.215 5	¹⁵⁹ Gd(18.479 h)	363.55, 58.00, 348.16	262.322 2	5.29 5	¹⁵⁵ Tb(5.32 d)	86.545, 105.305, 180.103
226.378 8	3.30 20	²³⁹ Am(11.9 h)	277.599, 228.183, 209.753	262.81 3	0.225 11	²⁰⁹ Po(102 y)	260.48
226.918 4	68.4 12	¹⁵⁵ Dy(9.9 h)	184.564, 1089.8, 1090.0	263.285 10	6.71 21	¹⁸² Os(22.10 h)	510.056, 180.230, 55.506
227.0 10	6.3 11	²⁵¹ Cf(898 y)	176.6, 285.0, 61.5	264.44 3	54	⁷⁷ Ge(11.30 h)	211.03, 215.50, 416.33
227.083 7	0.221 8	¹⁸⁸ W(69.4 d)	290.669, 63.582, 207.849	264.6584 19	58.50 23	⁷⁵ Se(119.779 d)	136.0008, 279.5441, 121.1166
228		²⁰² Pt(44 h)	244	264.9	>0.07	¹⁶⁷ Tm(9.25 d)	207.801, 57.0723, 531.54
228.16 6	88.0 18	¹³² Te(3.204 d)	49.72, 116.30, 111.76	265 10	30	²⁴⁷ Bk(1380 y)	84.0
228.183 1	10.76 18	²³⁹ Np(2.3565 d)	106.125, 277.599, 209.753	265.56 2	41.8 13	¹³⁵ Ce(17.7 h)	300.07, 606.76, 518.05
228.183 1	11.3 6	²³⁹ Am(11.9 h)	277.599, 209.753, 226.378	265.832 5		²¹⁰ Bi(5.013 d)	304.896
228.183 1	10.6 3	²⁴³ Cm(29.1 y)	277.599, 209.753, 285.460	265.832 5	50	²¹⁰ Bi(3.04×10^6 y)	304.896, 649.42, 344.52
228.4838 6	37.0 7	¹⁷⁷ Lu(160.4 d)	208.3664, 378.5029, 418.5391	266.62 2	0.69 3	²⁴⁹ Cf(351 y)	388.16, 333.37, 252.80
228.56 20	0.000333 14	²³⁷ Pu(45.2 d)	280.40, 298.89, 320.75	266.9 1	7.3 4	⁹³ Y(10.18 h)	947.1, 1917.8, 680.2
229.32 2	63.3	¹⁴⁷ Gd(38.06 h)	396.00, 929.01, 370.0	266.9 4	10.8 13	¹⁷⁵ Ta(10.5 h)	207.4, 348.5, 81.5
229.3220 6	26	¹⁸² Re(64.0 h)	67.75001, 1121.3007, 1221.4066	268.22 5	3.9 3	¹⁹³ Au(17.65 h)	186.17, 255.57, 173.52
229.50 6	0.106 9	¹²⁸ Ba(2.43 d)	273.44, 374.99, 359.10	268.38 2	3.96 17	²⁰⁰ Pb(21.5 h)	147.63, 257.17, 235.63
229.6 6	0.683 17	¹⁷⁵ Hf(70 d)	343.40, 89.36, 433.0	268.78 5	0.231 22	¹⁹⁷ Pt(18.3 h)	77.351, 191.437
230.37 5	27	²²⁶ Ac(29 h)	158.18, 72.20, 574.8	268.78 5	0.0378 18	¹⁹⁷ Hg(64.14 h)	77.351, 191.437
230.37 5	0.122 6	²³⁰ U(20.8 d)	72.20, 154.23, 158.18	269.1		²⁵⁵ Es(39.8 d)	233.6, 35.7
231.1 2	\dagger 61	²⁵⁶ Es(7.6 h)	861.8, 172.6, 1092.9	269.459 10	13.7 3	²²³ Ra(11.435 d)	154.21, 323.871, 144.232
231.67 1	22.8 14	⁸⁵ Y(4.86 h)	2123.8, 767.40, 535.61	269.50 2	\dagger 36.5 8	⁵⁶ Ni(5.9 d)	158.38, 811.85, 749.95
232.72 12	8.5×10^{-6} 15	⁹⁹ Tc(6.01 h)	322.41, 89.65	269.67 7	6.43 12	¹⁰¹ Pd(8.47 h)	296.29, 590.44, 24.46
233.6 3		²⁵⁵ Es(39.8 d)	269.1, 35.7	270.2 2	21.1 23	⁷⁶ Kr(14.8 h)	315.7, 45.48, 406.5
235.63 2	4.30 13	²⁰⁰ Pb(21.5 h)	147.63, 257.17, 268.38	270.243 4	0.00316 5	²³² U(68.9 y)	57.762, 129.065, 327.995
235.69 2	0.294 16	⁹⁵ Zr(64.02 d)	756.729, 724.199	270.4031 20	80 5	¹⁸² Hf(9×10^6 y)	156.088, 114.3152, 172.5708
235.971 20	\dagger 12.3 9	²²⁷ Th(18.72 d)	50.13, 256.25, 329.851	270.53 4	28.0 4	¹¹⁹ Te(4.70 d)	153.59, 1212.73, 1136.75
236.48 1	0.063 9	²¹¹ Rn(14.6 h)	68.573, 167.90	271.135 8	0.076 3	¹⁵² Eu(9.274 h)	344.281, 1314.67, 970.38
238.632 2	43.3 4	²¹² Pb(10.64 h)	300.087, 115.183, 415.2	271.135 8	\dagger 86.6	¹⁵² Tb(17.5 h)	344.281, 586.294, 778.91
238.996 3	1.6	⁷⁷ As(38.83 h)	520.639, 249.786, 87.8671	271.8 4	2.6	²⁵³ Fm(3.00 d)	144.99, 62.47, 405
238.996 3	23	⁷⁷ Br(57.036 h)	520.639, 297.215, 249.786	272.105 15	21.2 3	¹⁷³ Lu(1.37 y)	78.63, 100.724, 171.393
240	\dagger 23	²²⁸ Pa(22 h)	95, 310, 280	272.918 6	0.550 17	¹⁷⁴ Lu(142 d)	992.128, 176.645, 76.471
240.987 6	3.97 4	²²⁴ Ra(3.66 d)	292.70, 645.50, 422.04	273.44 1	15	¹²⁸ Ba(2.43 d)	374.99, 229.50, 359.10
241.0 1	11.0 6	²⁵⁷ Fm(100.5 d)	179.4, 61.6, 104.4	274.8 3	50.4 20	¹⁹² Hg(4.85 h)	157.2, 306.5, 186.4
242.80 10	96	⁸⁶ Zr(16.5 h)	29.10, 612.00, 135.6	275.21 2	6.8 5	¹⁵¹ Pm(28.40 h)	340.08, 167.75, 717.72
242.917 7	35.5 7	¹⁶⁵ Tm(30.06 h)	47.155, 297.369, 806.372	275.988 12	0.30	⁸¹ Kr(2.29×10^5 y)	
243.28 5	5.60 3	¹⁵¹ Gd(124 d)	153.56, 174.70, 21.531	276.8 1	\dagger 20.2 19	²⁵⁸ Md(51.5 d)	367.8, 447.9, 71.1
243.37 6	7.0 10	¹⁸⁹ Pt(10.87 h)	721.41, 94.33, 568.84	277.089 10	3.56 6	¹⁴⁹ Eu(93.1 d)	327.526, 22.510, 254.566
243.378 5	30.1 6	¹²⁵ Xe(16.9 h)	188.418, 54.968, 453.796	277.599 1	14.38 21	²³⁹ Np(2.3565 d)	106.125, 228.183, 209.753
243.71 3	2.49 16	²⁰⁰ Pt(12.5 h)	76.21, 135.90, 59.97	277.599 1	15.0 7	²³⁹ Am(11.9 h)	228.183, 209.753, 226.378
244		²⁰² Pt(44 h)	228	277.599 1	14.0 4	²⁴³ Cm(29.1 y)	228.183, 209.753, 285.460
245.09 3	3.5 4	¹⁸⁹ Re(24.3 h)	216.663, 219.395, 185.85	278.0 8	3.4 7	²⁴⁷ Cm(1.56×10^7 y)	402.6, 287.4, 344.5
245.09 3	6	¹⁸⁹ Ir(13.2 d)	69.537, 59.053, 36.202	279.01 5	\dagger 5.0	¹⁹⁷ Hg(23.8 h)	130.2, 201.6, 77.351
245.31 1	79.4	²¹⁰ At(8.1 h)	1181.39, 1483.39, 1436.70	279.1967 12	81	²⁰³ Hg(46.612 d)	
245.422 6	1.24 7	¹¹¹ Ag(7.45 d)	342.118, 96.73, 620.3	279.1967 12	81	²⁰³ Pb(51.873 h)	401.323, 680.516
245.422 6	94	¹¹¹ In(2.8049 d)	171.28, 150.824	279.5441 13	24.79 11	⁷⁵ Se(119.779 d)	264.6584, 136.0008, 121.1166
246.0591 5	27.4	¹⁸³ Ta(5.1 d)	353.9912, 107.9322, 161.3467	280	\dagger 20	²²⁸ Pa(22 h)	95, 310, 240
247.26 3	9.3 5	¹⁹⁹ Tl(7.42 h)	455.46, 208.20597, 158.37947	280.40 20	0.000920 18	²³⁷ Pu(45.2 d)	298.89, 320.75, 228.56
247.925 6	22.1 20	¹⁵⁴ Tb(9.4 h)	123.071, 540.18, 649.564	280.41 6	0.167 13	¹⁰⁵ Rh(35.36 h)	319.14, 306.25, 442.37
247.925 6	79.9	¹⁵⁴ Tb(22.7 h)	346.643, 1419.81, 123.071	280.41 6	30.2 17	¹⁰⁵ Ag(41.29 d)	344.520, 644.55, 443.37
249.6741 10	0.212 11	¹⁷⁷ Lu(6.734 d)	208.3664, 112.9498, 321.3162	280.459 8	29.77 22	¹⁶⁶ Ho(1.20×10^3 y)	184.410, 810.276, 711.683
249.770 4	90	¹³⁵ Xe(9.14 h)	608.151, 408.009, 158.260	280.462 9		¹¹⁰ Sn(4.11 h)	
249.786 3	0.394 16	⁷⁷ As(38.83 h)	238.996, 520.639, 87.8671	282.522 14	3.01 5	¹⁷⁵ Yb(4.185 d)	396.329, 113.805, 144.863
249.786 3	2.98 7	⁷⁷ Br(57.036 h)	238.996, 520.639, 297.215	283.69 1	1.7	²³¹ Pa(32760 y)	27.36, 300.07, 302.65
251.863 10	26.3 9	¹⁵¹ Tb(17.609 h)	287.357, 108.088, 587.46	284.305 5	6.14 5	¹³¹ I(8.02070 d)	364.489, 636.989, 80.185
252.4 3	8.5 3	¹²⁷ Sb(3.85 d)	685.7, 473.0, 783.7	285.0 2	1.4 3	²⁵¹ Cf(898 y)	176.6, 227.0, 61.5
252.80 2	29.1 19	²⁴⁵ Bk(4.94 d)	380.8, 385.0, 103.1	285.460 2	0.728 20	²⁴³ Cm(29.1 y)	277.599, 228.183, 209.753
252.848 5	2.50 8	²⁴⁹ Cf(351 y)	388.16, 333.37, 266.62	285.95 1	3.1	¹⁴⁹ Pm(53.08 h)	859.46, 590.88, 22.510
252.848 5	43.3	¹⁸⁴ Ta(8.7 h)	414.03, 920.932, 111.208	286.410 26	23.8 5	²⁰⁶ Po(8.8 d)	1032.26, 511.36, 807.38
252.848 5	10.7 3	¹⁸⁴ Re(169 d)	216.548, 920.932, 161.269	287.357 10	28.3 9	¹⁵¹ Tb(17.609 h)	251.863, 108.088, 587.46
253.68 1	99.6	¹¹⁸ Sb(5.00 h)	1229.68, 1050.69, 41.0	287.4 3	2.0 3	²⁴⁷ Cm(1.56×10^7 y)	402.6, 278.0, 344.5
253.73 1	5.7 4	²²⁶ Ac(29 h)	186.05, 67.67	290.27 17	0.00014 5	¹⁵⁹ Dy(144.4 d)	58.00, 348.16, 79.45
253.73 1	0.0111 5	²³⁰ Th(7.538×10^4 y)	67.67, 143.87, 186.05	290.669 13	0.402 12	¹⁸⁸ W(69.4 d)	227.083, 63.582, 207.849
254.259 17	8.58 22	¹⁵³ Dy(6.4 h)	80.723, 213.754, 99.659	291.7 1	\dagger 0.0011	²⁰⁸ Po(2.898 y)	570.4, 601.6, 861.9
254.4 2	13.3 13	¹⁸⁵ Ir(14.4 h)	1828.8, 60.0, 97.4	291.7238 5	3.05 16	¹⁸³ Re(70.0 d)	162.3219, 46.4839, 208.8057
254.566 23	0.636 12	¹⁴⁹ Eu(93.1 d)	327.526, 277.089, 22.510	292.70 10	0.0060 7	²²⁴ Ra(3.66 d)	240.987, 645.50, 422.04
255.06 5	1.82 6	¹¹³ Sn(115.09 d)	391.690, 638.03, 382.6	293.266 2	42.80 13	¹⁴³	

D-6

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
293.545 13	2.55 10	¹⁹⁴ Ir(19.15 h)	328.455, 645.157, 938.70	328.455 11	60.3	¹⁹⁴ Au(38.02 h)	293.545, 1468.91, 2043.67
293.545 13	10.2 5	¹⁹⁴ Au(38.02 h)	328.455, 1468.91, 2043.67	328.762 8	20.3 3	¹⁴⁰ La(1.6781 d)	1596.210, 487.021, 815.772
294.978 20	0.00280 7	¹⁰³ Pd(16.991 d)	39.757, 357.47, 497.080	329.851 20	$\dagger 2.7 3$	²²⁷ Th(18.72 d)	235.971, 50.13, 256.25
295.0 3	0.73 22	¹⁰¹ Rh(3.3 y)	127.23, 197.6, 324.8	331.19 3	79.5	²⁰¹ Pb(9.33 h)	361.27, 945.96, 907.56
295.901 13	28.9 8	¹⁷¹ Er(7.516 h)	308.31, 111.621, 124.015	332.983 24	22.9 5	¹⁹⁶ Au(6.183 d)	355.684, 521.175, 1091.331
295.95827 12	28.67 9	¹⁹² Ir(73.831 d)	316.50791, 468.07152, 308.45692	333.37 2	14.6 4	²⁴⁹ Cf(351 y)	388.16, 252.80, 266.62
295.95827 12	22.3 3	¹⁹² Au(4.94 h)	316.50791, 2236.89, 612.46564	333.4 0	0.000058 16	¹⁸⁶ Re(90.64 h)	137.155, 767.508, 630.354
296.29 3	19	¹⁰¹ Pd(8.47 h)	590.44, 269.67, 24.46	333.971 12	4.0 3	¹⁵⁰ Eu(12.8 h)	406.52, 1165.739, 921.17
296.911 14	64.0 15	¹⁸⁶ Ir(16.64 h)	137.155, 434.849, 773.276	333.971 12	96	¹⁵⁰ Eu(35.8 y)	439.401, 584.274, 737.455
296.974 9	33.9 7	¹⁷³ Hf(23.6 h)	123.672, 139.634, 311.239	336.240 12	45.9 1	¹¹⁵ Cd(53.46 h)	527.900, 492.3, 260.890
297.215 4	4.16 18	⁷⁷ Br(57.036 h)	238.996, 520.639, 249.786	337.713 5	0.181 19	¹⁷⁹ Lu(4.59 h)	214.335, 214.930, 123.3790
297.32 5	79.8 16	⁷³ Ga(4.86 h)	325.70, 739.42, 767.8	338.322 2	11.3 3	²²⁸ Ac(6.15 h)	911.205, 968.971, 964.770
297.369 6	12.71 25	¹⁶⁵ Tm(30.06 h)	242.917, 47.155, 806.372	340.08 1	23	¹⁵¹ Pm(28.40 h)	167.75, 275.21, 717.72
298.58 2	10	¹¹³ Ag(5.37 h)	258.8, 316.3, 672.3	340.547 8	$\dagger 42.3 13$	¹³⁶ Cs(13.16 d)	818.514, 1048.073, 1235.362
298.580 2	25.51 12	¹⁶⁰ Tb(72.3 d)	879.383, 966.171, 1177.962	340.71 13	70.3	⁹⁹ Rh(4.7 h)	617.8, 1261.2, 936.7
298.634 5	28.6 7	¹⁴⁹ Gd(9.28 d)	149.735, 346.651, 748.601	340.81 3	4.47 4	²³³ Pa(26.967 d)	312.17, 300.34, 86.814
298.89 20	0.000664 17	²³⁷ Pu(45.2 d)	280.40, 320.75, 228.56	341.65 5	0.40 4	¹³⁶ Nd(5.04 h)	325.76, 199.50, 215.31
300.07 2	23.5 3	¹³⁵ Ce(17.7 h)	265.56, 606.76, 518.05	342.118 7	7	¹¹¹ Ag(7.45 d)	245.422, 96.73, 620.3
300.07 1	2.46 7	²³¹ Pa(32760 y)	27.36, 302.65, 283.69	343.40 8	84	¹⁷⁵ Hf(70 d)	89.36, 433.0, 229.6
300.087 10	3.28 3	²¹² Pb(10.64 h)	238.632, 115.183, 415.2	344.281 2	2.44 3	¹⁵² Eu(9.274 h)	1314.67, 970.38, 271.135
300.219 10	0.797 11	⁶⁷ Cu(61.83 h)	184.577, 93.311, 91.266	344.281 2	26.58 19	¹⁵² Eu(13.542 y)	778.91, 411.115, 1089.700
300.219 10	16.80 22	⁶⁷ Ga(3.2612 d)	93.311, 184.577, 393.529	344.281 2	\dagger	¹⁵² Tb(17.5 h)	586.294, 271.135, 778.91
300.34 2	6.62 6	²³³ Pa(26.967 d)	312.17, 340.81, 86.814	344.5 5	1.3	²⁴⁷ Cm(1.56 $\times 10^7$ y)	402.6, 278.0, 287.4
300.884 15	$\dagger 0.088 7$	¹³⁴ Ce(75.9 h)	162.306, 130.414, 39.08	344.520 21	41	¹⁰⁵ Ag(41.29 d)	280.41, 644.55, 443.37
302.65 1	2.2 3	²³¹ Pa(32760 y)	27.36, 300.07, 283.69	344.52 17	0.7	²¹⁰ Bi(3.04 $\times 10^6$ y)	265.832, 304.896, 649.42
302.853 1	0.0048 3	¹³³ Xe(5.243 d)	80.997, 79.623, 160.613	344.9 2	35.2 14	¹⁸⁴ Hf(4.12 h)	139.1, 181.0, 41.4
302.853 1	18.33 6	¹³³ Ba(10.52 y)	356.017, 80.997, 383.851	344.95 20	0.0030 3	⁶⁵ Zn(244.26 d)	1115.546, 770.6
303.41 3	21.6 11	²⁵⁰ Es(8.6 h)	828.82, 349.4, 383.7	345.916 25	15.12 10	¹⁸¹ Hf(42.39 d)	482.182, 133.024, 136.266
304 2	0.07 1	²⁵⁴ Es(275.7 d)	63.0, 316, 385	346.643 5	69.5	¹⁵⁴ Tb(22.7 h)	247.925, 1419.81, 123.071
304.849 3	4.30 5	¹⁴⁰ Ba(12.752 d)	537.261, 29.9640, 162.660	346.651 3	23.9 3	¹⁴⁹ Gd(9.28 d)	149.735, 298.634, 748.601
304.896 6		²¹⁰ Bi(5.013 d)	265.832	346.93 7	0.0076 5	⁶⁰ Co(5.2714 y)	1332.501, 1173.237, 826.06
304.896 6	28	²¹⁰ Bi(3.04 $\times 10^6$ y)	265.832, 649.42, 344.52	347.18 10	$\dagger 47 6$	¹⁷¹ Hf(1.21 h)	122.0, 662.2, 1071.8
306.25 3	5.1 3	¹⁰⁵ Rh(35.36 h)	319.14, 280.41, 442.37	348.16 7	0.234 5	¹⁵⁹ Gd(18.479 h)	363.55, 58.00, 226.01
306.47 10	2.6 1	⁷⁹ Kr(35.04 h)	261.29, 397.54, 606.09	348.16 7	0.00095 10	¹⁵⁹ Dy(144.4 d)	58.00, 79.45, 290.27
306.5 3	5.4 6	¹⁹² Hg(4.85 h)	274.8, 157.2, 186.4	348.5 5	12.0 6	¹⁷⁵ Ta(10.5 h)	207.4, 266.9, 81.5
306.78 4	94	¹⁷⁶ Lu(3.78 $\times 10^{10}$ y)	201.83, 88.34, 400.99	349.4 1	19.8 9	²⁵⁰ Es(8.6 h)	828.82, 303.41, 383.7
306.85 5	$\dagger 87 4$	¹⁰¹ Rh(4.34 d)	545.06, 127.23, 179.62	349.9 1	0.82 4	²⁵¹ Fm(5.30 h)	880.8, 453.1, 405.6
308.222 8	4.9 5	²⁴⁵ Pu(10.5 h)	327.428, 560.13, 376.676	350.065 10	7.80 16	¹²² Xe(20.1 h)	148.612, 416.633, 90.596
308.222 8	$\dagger 3.2 \times 10^{-6} 9$	²⁴⁹ Bk(320 d)	327.428	352.24 2	29.43 9	¹⁴⁹ Tb(4.118 h)	164.98, 388.57, 652.12
308.25 5	100	⁴⁸ Cr(21.56 h)	112.36, 420.5	353.05 6	30.0 8	⁹⁹ Rh(16.1 d)	528.24, 89.65, 322.41
308.31 3	64.4 16	¹⁷¹ Er(7.516 h)	295.901, 111.621, 124.015	353.9912 5	11.2 3	¹⁸³ Ta(5.1 d)	246.0591, 107.9322, 161.3467
308.45692 13	30.00 8	¹⁹² Ir(73.831 d)	316.50791, 468.07152, 295.95827	355.40 9	2.09 9	⁹⁷ Zr(16.91 h)	743.36, 507.64, 1147.97
310	$\dagger 42$	²²⁸ Pa(22 h)	95, 240, 280	355.684 2	87	¹⁹⁶ Au(6.183 d)	332.983, 521.175, 1091.331
311.239 8	10.75 20	¹⁷³ Hf(23.6 h)	123.672, 296.974, 139.634	356.017 2	62.05 19	¹³³ Ba(10.52 y)	80.997, 302.853, 383.851
311.4 1	0.032 3	¹⁰⁹ Pd(13.7012 h)	88.04, 647.3, 781.4	357.47 5	0.0221 7	¹⁰³ Pd(16.991 d)	39.757, 497.080, 294.978
312.17 2	38.6 4	²³³ Pa(26.967 d)	300.34, 340.81, 86.814	358.3 1	0.315 20	²⁵¹ Fm(5.30 h)	425.4, 480.4, 383.2
312.6	0.336 20	⁴² K(12.360 h)	1524.70, 899.43, 1922.18	359.10 4	0.096 9	¹²⁸ Ba(2.43 d)	273.44, 374.99, 229.50
314.12 2	61 3	¹²⁸ Sb(9.01 h)	753.82, 743.22, 526.57	359.90 9	6.0 3	¹⁹¹ Pt(2.9 d)	538.90, 409.44, 82.407
314.8 3	0.094 12	²³⁰ Pa(17.4 d)	366.56, 383.6, 51.72	360.32 10	0.1346 10	¹²⁷ Te(9.35 h)	417.95, 202.860, 215.17
315.7 2	39.4	⁷⁶ Kr(14.8 h)	270.2, 45.48, 406.5	360.70 11	20.4	¹⁸¹ Re(19.9 h)	365.57, 639.30, 953.42
316 2	0.15 2	²⁵⁴ Es(275.7 d)	63.0, 304, 385	360.80 10	108	⁷³ Se(7.15 h)	67.03, 865.09, 510
316.3 1	1.343 20	¹¹³ Ag(5.37 h)	298.58, 258.8, 672.3	361.27 5	9.9 5	²⁰¹ Pb(9.33 h)	331.19, 945.96, 907.56
316.44 15	11.1 4	¹⁰⁵ Ru(4.44 h)	724.21, 469.37, 676.36	362.81 4	$2.2 \times 10^{-6} 4$	⁸⁵ Kr(10.756 y)	514.0067, 151.159, 129.820
316.50791 13	82.81 21	¹⁹² Ir(73.831 d)	468.07152, 308.45692, 295.95827	362.81 4	> 0.0010	⁸⁵ Sr(64.84 d)	514.0067, 868.5, 151.159
316.50791 13	58.0 8	¹⁹² Au(4.94 h)	295.95827, 2236.89, 612.46564	363.55 4	11.4 6	¹⁵⁹ Gd(18.479 h)	58.00, 348.16, 226.01
319.14 6	19	¹⁰⁵ Rh(35.36 h)	306.25, 280.41, 442.37	364.489 5	81.7 6	¹³¹ I(8.02070 d)	636.989, 284.305, 80.185
319.411 18	1.95 11	¹⁴⁷ Nd(10.98 d)	91.105, 531.016, 439.895	365.57 12	56.6	¹⁸¹ Re(19.9 h)	360.70, 639.30, 953.42
320.0842 9	10	⁵¹ Cr(27.702 d)		366.56 10	0.076 12	²³⁰ Pa(17.4 d)	314.8, 383.6, 51.72
320.75 20	0.000548 17	²³⁷ Pu(45.2 d)	280.40, 298.89, 228.56	367.8 1	$\dagger 100 7$	²⁵⁸ Md(51.5 d)	447.9, 276.8, 71.1
321.3162 16	0.219 11	¹⁷⁷ Lu(6.734 d)	208.3664, 112.9498, 249.6741	367.943 10	$\dagger 73$	²⁰⁰ Au(18.7 h)	497.77, 579.298, 255.87
322.41 8	0.000097 5	⁹⁹ Tc(6.01 h)	232.72, 89.65	367.943 10	87	²⁰⁰ Tl(26.1 h)	1205.717, 579.298, 828.320
322.41 8	5.4 3	⁹⁹ Rh(16.1 d)	528.24, 353.05, 89.65	370.0 1	17.2 6	¹⁴⁷ Gd(38.06 h)	229.32, 396.00, 929.01
323.20 18	6.3 5	⁹⁰ Mo(5.67 h)	257.34, 122.370, 203.13	370.509 8	11.0 6	¹⁵⁷ Eu(15.18 h)	63.929, 410.723, 54.548
323.871 10	3.93 7	²²³ Ra(11.435 d)	269.459, 154.21, 144.232	371.4 1	11.7 6	²⁵⁷ Md(5.52 h)	325.1, 181.3, 388.5
324.48 3	10.79 17	⁹⁷ Ru(2.9 d)	215.718, 569.31, 460.57	371.918 2	30.60 9	¹²⁹ Cs(32.06 h)	411.490, 548.945, 39.578
324.8 2	13.4 11	¹⁰¹ Rh(3.3 y)	127.23, 197.6, 295.0	372.760	87	⁴³ K(22.3 h)	617.490, 396.861, 593.390
324.81 3	0.0314 15	¹⁰⁷ Cd(6.50 h)	93.124, 828.93, 796.462	373.246 11	14.04 19	¹³¹ Ba(11.50 d)	496.326, 123.805, 216.078
325.1 2	2.5 3	²⁵⁷ Md(5.52 h)	371.4, 181.3, 388.5	374.4852 8	0.721 5	¹⁹² Ir(73.831 d)	205.79549, 484.5780, 201.3112
325.70 7	11.17 24	⁷³ Ga(4.86 h)	297.32, 739.42, 767.8	374.72 7	82.4	²⁰⁴ Bi(11.22 h)	899.15, 984.02, 911.78
325.76 5	2.84 7	¹³⁸ Nd(5.04 h)	199.50, 341.65, 215.31	374.99 2	0.309 15	¹²⁸ Ba(2.43 d)	273.44, 229.50, 359.10
326.16 20	92	¹⁵⁷ Dy(8.14 h)	182.20, 83.01, 60.82	374.991 12	17.2 6	¹²⁷ Xe(36.4 d)	202.860, 172.132, 145.252
326.785 15	3.034 25	⁷¹ As(65.28 h)	174.954, 1095.490, 499.876	375.045 6	0.001554 9	²³⁹ Pu(24110 y)	51.624, 38.661, 129.297
327.428 8	25.4 25	²⁴⁵ Pu(10.5 h)	560.13, 308.222, 376.676	376.676 3	3.2 3	²⁴⁵ Pu(10.5 h)	327.428, 560.13, 308.222
327.428 8	$\dagger 0.00001 73$	²⁴⁹ Bk(320 d)	308.222	377.4 3	0.122 15	²⁵² Es(471.7 d)	52.33, 64.42, 418.5
327.526 10	4.03 12	¹⁴⁹ Eu(93.1 d)	277.089, 222.510, 254.566	377.738 5	1.68 4	⁵² Fe(8.275 h)	168.684, 1039.902
327.995 2	0.00282 5	²³² U(68.9 y)	57.762, 129.065, 270.243	378.5029 7	29.7 12		

D-7

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
381.43 10	7.5 4	¹⁸⁸ Pt(10.2 d)	187.59, 195.05, 423.34	439.59 2	91	²⁰² Tl(12.23 d)	520.11, 959.70
381.53 3	14.1 5	⁸³ Sr(32.41 h)	762.65, 418.37, 381.17	439.895 22	1.20 8	¹⁴⁷ Nd(10.98 d)	91.105, 531.016, 319.411
381.7 3	0.56 5	²⁴³ Pu(4.956 h)	84.0, 41.8, 67	440.02 5	0.428 14	¹²³ I(13.27 h)	158.97, 528.96, 538.54
381.768 12	89.6 9	¹⁸³ Os(13.0 h)	114.463, 167.844, 851.474	442.2 1	23.0 14	²¹¹ Rn(14.6 h)	674.1, 1362.9, 678.4
382.6 4	>0.000060	¹¹³ Sn(115.09 d)	391.690, 255.06, 638.03	442.37 5	0.042 6	¹⁰⁵ Rh(35.36 h)	319.14, 306.25, 280.41
383.2 3	0.0196 20	²⁵¹ Fm(5.30 h)	425.4, 480.4, 358.3	443.37 7	10.5 5	¹⁰⁵ Ag(41.29 d)	344.520, 280.41, 644.55
383.6 5	0.036 3	²³⁰ Pa(17.4 d)	314.8, 366.56, 51.72	443.799 19	3.27 9	¹⁰³ Ru(39.26 d)	497.080, 610.33, 557.039
383.7 1	13.6 7	²⁵⁰ Es(8.6 h)	828.82, 303.41, 349.4	446.025 9	2.96 7	¹⁷² Er(49.3 h)	610.062, 407.338, 68.107
383.851 3	8.94 3	¹³³ Ba(10.52 y)	356.017, 80.997, 302.853	446.15 2	23.2 7	⁸¹ Rb(4.576 h)	190.38, 510.31, 456.76
385.0 1	0.57 4	²⁴⁵ Bk(4.94 d)	252.80, 380.8, 103.1	447.15 8	1.8	¹³⁷ Ce(9.0 h)	10.6, 436.59, 433.22
385.2	0.05 1	²⁵⁴ Es(275.7 d)	63.0, 316, 304	447.515 3	23.05 10	¹⁶⁸ Tm(93.1 d)	198.241, 815.990, 184.285
385.31 13	0.060 10	⁹⁹ Mo(6.85 h)	949.82, 689.07, 541.32	447.9 1	†37 4	²⁵⁸ Md(51.5 d)	367.8, 276.8, 71.1
387.1 5	0.00810 18	²⁵³ Es(20.47 d)	41.79, 389.11, 42.98	450.85 2	0.011 4	⁸⁵ Kr(4.480 h)	151.159, 129.820, 731.812
387.87 5	2.15 8	¹⁹⁵ Hg(41.6 h)	261.75, 560.27, 200.38	450.97 3	28.2 7	¹⁰⁶ Ag(8.28 d)	511.842, 1045.83, 717.24
388.16 2	66	²⁴⁹ Cf(351 y)	333.37, 252.80, 266.62	453.1 1	1.45 8	²⁵¹ Fm(5.30 h)	880.8, 405.6, 349.9
388.5 15	0.07	²⁵⁷ Md(5.52 h)	371.4, 325.1, 181.3	453.655 5	8.61 19	²³² Pa(1.31 d)	969.315, 894.351, 150.059
388.531 3	82	⁸⁷ Y(79.8 h)	484.805	453.796 11	4.69 10	¹²⁵ Xe(16.9 h)	188.418, 243.378, 54.968
388.57 2	18.37 13	¹⁴⁹ Tb(4.118 h)	352.24, 164.98, 652.12	453.88 6	65 2	¹⁴⁶ Pm(5.53 y)	735.72, 589.3, 146.4
388.633 11	34.1 7	¹²⁶ I(13.11 d)	491.243, 879.876	454.95 5	6.27 16	²³⁰ Pa(17.4 d)	951.95, 918.48, 898.68
389.11 8	0.0264 3	²⁵³ Es(20.47 d)	41.79, 387.1, 42.98	454.95 5	0.000025 7	²³⁴ U(2.455×10 ⁵ y)	53.20, 120.90, 508.20
391.25 7	5.4 4	¹¹¹ Pd(5.5 h)	70.44, 632.80, 575.0	455.46 3	12.4 6	¹⁹⁹ Tl(7.42 h)	208.20597, 247.26, 158.37947
391.690 8	64	¹¹³ Sn(115.09 d)	255.06, 638.03, 382.6	456.76 5	3.02 9	⁸¹ Rb(4.576 h)	190.38, 446.15, 510.31
392.87 9		⁸⁸ Zr(83.4 d)		459.88 12	26.62 19	⁹⁶ Nb(23.35 h)	778.224, 568.80, 849.929
393.529 10	4.68 6	⁶⁷ Ga(3.2612 d)	93.311, 184.577, 300.219	460.50 3	3.95 20	¹⁹³ Os(30.5 h)	139.03, 73.039, 557.36
396.00 10	34.3 16	¹⁴⁷ Gd(38.06 h)	229.32, 929.01, 370.0	460.57 3	0.121 3	⁹⁷ Ru(2.9 d)	215.718, 324.48, 569.31
396.329 20	6.40 10	¹⁷⁵ Yb(4.185 d)	282.522, 113.805, 144.863	461.4 8	6.9 3	¹⁷³ Tm(8.24 h)	398.9, 62.6
396.86 1	11.85 8	⁴³ K(22.3 h)	372.760, 617.490, 593.390	462.31 5	5.07 5	¹²⁷ Cs(6.25 h)	411.95, 124.70, 587.01
397.54 10	9.3 3	⁷⁹ Kr(35.04 h)	261.29, 606.09, 306.47	463.005 4	1.250 6	²²⁸ Pa(22 h)	911.205, 964.770, 968.971
398.9 6	88	¹⁷³ Tm(8.24 h)	461.4, 62.6	463.365 4	10.493 15	¹²⁵ Sb(2.7582 y)	427.875, 600.600, 635.954
400.56 5	36.6 10	²⁸ Mg(20.91 h)	30.6383, 1342.27, 941.72	464.55 4	1.73 8	¹³² Cs(6.479 d)	567.14, 1031.70
400.89 7	3.94 13	¹⁸⁷ Ir(10.5 h)	912.95, 427.12, 610.68	464.55 4	76 5	¹³² La(4.8 h)	567.14, 1909.91, 663.07
400.99 4	0.329 19	¹⁷⁶ Lu(3.78×10 ¹⁰ y)	306.78, 201.83, 88.34	468.07152 24	47.83 17	¹⁹² Ir(73.831 d)	316.50791, 308.45692, 295.95827
401.323 10	3.35 7	²⁰³ Pb(51.873 h)	279.1967, 680.516	468.59 6	†2.81 19	¹⁰² Rh(207 d)	475.070, 628.05, 1103.16
402.6 3	72 6	²⁴⁷ Cm(1.56×10 ⁷ y)	278.0, 287.4, 344.5	469.37 10	17.5 5	¹⁰⁵ Ru(4.44 h)	724.21, 676.36, 316.44
405 2	0.08	²⁵³ Fm(3.00 d)	271.8, 144.99, 62.47	470.472 13	1.41 3	¹²¹ Te(16.78 d)	573.139, 507.591, 65.548
405.6 1	0.99 5	²⁵¹ Fm(5.30 h)	880.8, 453.1, 349.9	471.805 20	71 3	²⁴¹ Cm(32.8 d)	430.634, 132.413, 165.049
405.75 6	9.7 5	²⁰⁷ Po(5.80 h)	992.33, 742.64, 911.79	471.805 20	0.026 5	²⁴⁵ Bk(4.94 d)	205.879, 164.8, 430.634
406.5 2	12.1 12	⁷⁶ Kr(14.8 h)	315.7, 270.2, 45.48	473.0 4	25.7 7	¹²⁷ Sb(3.85 d)	685.7, 783.7, 252.4
406.52 5	2.81 24	¹⁵⁰ Eu(12.8 h)	333.971, 1165.739, 921.17	475.070 27	95 4	¹⁰² Rh(2.9 y)	631.28, 697.49, 766.84
407.338 3	42.1 8	¹⁷² Er(49.3 h)	610.062, 68.107, 446.025	475.070 27	†45 3	¹⁰² Rh(207 d)	628.05, 1103.16, 468.59
407.63 4	25	¹⁹³ Hg(11.8 h)	257.97, 573.25, 932.37	476.8 1	42.0 8	¹⁴⁴ Pm(363 d)	696.510, 618.01, 778.5
408.009 8	0.359 12	¹³⁵ Xe(9.14 h)	249.770, 608.151, 158.260	477.2 2	20.2 14	⁵⁵ Co(17.53 h)	931.3, 1408.4, 1316.4
409.44 2	8.0 4	¹⁹¹ Pt(2.9 d)	538.90, 359.90, 82.407	477.22 4	39	¹³³ Ce(4.9 h)	510.36, 58.39, 130.803
410.723 9	17.5 9	¹⁵⁷ Lu(5.1518 h)	63.929, 370.509, 54.548	477.595 10	10.52 6	⁷ Be(53.29 d)	
411.115	2.231 21	¹⁵² Eu(13.542 y)	344.281, 778.91, 1089.700	477.99 2	1.0	¹⁸⁸ Re(16.98 h)	155.032, 632.99, 931.34
411.490 2	22.31 9	¹²⁹ Cs(32.06 h)	371.918, 548.945, 39.578	477.99 2	15	¹⁸⁶ Ir(41.5 h)	155.032, 2214.62, 632.99
411.8044 11	96	¹⁹⁸ Au(2.69517 d)	675.8874, 1087.6904	479.531 17	21.8 4	¹⁸⁷ W(23.72 h)	685.774, 72.001, 134.243
411.8044 11	82 7	¹⁹⁸ Tl(5.3 h)	675.8874, 636.4, 1200.6	480.4 1	0.392 20	²⁵¹ Fm(5.30 h)	425.4, 358.3, 383.2
411.95 5	62.8 13	¹²⁷ Cs(6.25 h)	124.70, 462.31, 587.01	480.51 2	1.5	¹³⁵ La(19.5 h)	874.51, 587.83, 220.94
414.03 4	72	¹⁸⁴ Ta(8.7 h)	252.848, 920.932, 111.208	482.182 23	80.50 11	¹⁸¹ Hf(42.39 d)	133.024, 345.916, 136.266
414.60 5	0.00030	²²⁶ Ra(1600 y)	186.10, 262.27, 600.66	482.833 22	97 5	¹⁹⁴ Ir(171 d)	328.455, 600.5, 687.7
414.81 2	83.3 21	¹²⁶ Sb(12.46 d)	695.03, 666.331, 720.64	484.40 4	2.21 11	¹⁸³ Os(9.9 h)	1101.94, 1107.92, 1034.85
415.2	0.143 22	²¹² Pb(10.64 h)	238.632, 300.087, 115.183	484.470 20	0.290 2	¹¹⁵ Cd(44.6 d)	933.8, 1290.580, 1132.570
416.33 3	21.8 5	⁷⁷ Ge(11.30 h)	264.44, 211.03, 215.50	484.5780 4	3.184 11	¹⁹² Ir(73.831 d)	205.79549, 374.4852, 201.3112
416.633 25	1.87 4	¹²² Xe(20.1 h)	350.065, 148.612, 90.596	484.805 5	89.7 3	⁸⁷ Y(79.8 h)	388.531
417.95 10	1.0	¹²⁷ Te(9.35 h)	360.32, 202.860, 215.17	487.021 12	45.5 6	¹⁴⁰ La(1.6781 d)	1596.210, 815.772, 328.762
418.01 3	34.2 10	¹³⁰ I(12.36 h)	536.09, 668.54, 739.48	489.23 10	6.5 4	⁴⁷ Ca(4.536 d)	1297.09, 807.86, 767.1
418.37 3	4.41 15	⁸³ Sr(32.41 h)	762.65, 381.53, 381.17	490.5 5	†15.8 18	²⁴⁴ Bk(4.35 h)	891.5, 217.6, 921.5
418.5 3	0.220 23	²⁵² Es(471.7 d)	52.33, 64.42, 377.4	491.243 11	2.85 6	¹²⁶ I(13.11 d)	388.633, 879.876
418.5391 7	21.3 8	¹⁷⁷ Lu(160.4 d)	208.3664, 228.4838, 378.5029	492.3 6	8.03 9	¹¹⁵ Cd(53.46 h)	336.240, 527.900, 260.890
420.5	<0.03	⁴⁸ Cr(21.56 h)	308.25, 112.36	492.31 15	0.00328 12	¹⁴⁵ Sm(340 d)	61.25, 431.4
422.04 10	0.0029 5	²²⁴ Ra(3.66 d)	240.987, 292.70, 645.50	496.326 13	47	¹³¹ Ba(11.50 d)	123.805, 216.078, 373.246
423.34 10	4.36 23	¹⁸⁸ Pt(10.2 d)	187.59, 195.05, 381.43	497.080 7	90.9 10	¹⁰³ Ru(39.26 d)	610.33, 443.799, 557.039
425.4 1	0.95 5	²⁵¹ Fm(5.30 h)	480.4, 358.3, 383.2	497.080 7	0.00396 14	¹⁰³ Pd(16.991 d)	39.757, 357.47, 294.978
426.00 3	0.58 12	¹⁶⁶ Dy(81.6 h)	82.471, 28.242, 54.2400	497.358 24	0.047 1	¹¹⁵ In(4.486 h)	
426.0 1	†7	¹⁹⁶ Au(6.183 d)		497.77 10	†73 5	²⁰⁰ Au(18.7 h)	367.943, 579.298, 255.87
426.25 21	4.12 15	¹⁰⁹ In(4.2 h)	203.5, 623.7, 1148.9	499.876 10	3.624 16	⁷¹ As(65.28 h)	174.954, 1095.490, 326.785
427.12 4	4.12 13	¹⁸⁷ Ir(10.5 h)	912.95, 400.89, 610.68	505.79 3	0.73 5	¹³² Cs(6.479 d)	667.718, 630.19, 1317.927
427.875 6	30	¹²⁵ Sb(2.7582 y)	600.600, 635.954, 463.365	507.591 11	17.7 4	¹²¹ Te(16.78 d)	573.139, 470.472, 65.548
430.634 20	4.06 20	²⁴¹ Cm(32.8 d)	471.805, 132.413, 165.049	507.60 10	14.8 8	⁶² Zn(9.186 h)	596.56, 40.84, 548.35
430.634 20	0.0015 3	²⁴⁵ Bk(4.94 d)	205.879, 471.805, 164.8	507.64 8	5.03 19	⁹⁷ Zr(16.91 h)	743.36, 1147.97, 355.40
431.4 5	0.000052 4	¹⁴⁵ Sm(340 d)	61.25, 492.31	508.20 10	0.000015 4	²³⁴ U(2.455×10 ⁵ y)	53.20, 120.90, 454.95
433.0 5	1.436 25	¹⁷⁵ Hf(70 d)	343.40, 89.36, 229.6	508.8 5	0.0228 18	¹⁴² Pr(19.12 h)	1575.85
433.22 9	0.0518 9	¹³⁷ Ce(9.0 h)	447.15, 10.6, 436.59	510	0.296 9	⁷³ Se(7.15 h)	360.80, 67.03, 865.09
433.937 5	90	¹⁰⁸ Ag(418 y)	722.938, 614.281	510.056 10	52	¹⁸² Os(22.10 h)	180.230, 263.285, 55.506
434.849 17	34.4 8	¹⁸⁶ Ir(16.64 h)	296.911, 137.155, 773.276	510.31 9	5.3 9	⁸¹ Rb(4.576 h)	190.38, 446.15, 456.76
436.55 9	0.265 9	¹³⁷ Ce(9.0 h)	447.15, 10.6, 433.22	510.36 7	20.7 5	¹³³ Ce(4.9 h)	477.22, 58.39, 130.803
439.401 15	80.4 16	¹⁵⁰ Eu(35.8 y)	333.971, 584.274, 737.455	510.530 11	1.83 4		

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
511.2	0.076	²²² Rn(3.8235 d)		579.298 13	13.8 7	²⁰⁰ Tl(26.1 h)	367.943, 1205.717, 828.320
511.36 5	24.1 5	²⁰⁶ Po(8.8 d)	1032.26, 286.410, 807.38	582.082 3	†0.055 7	⁹⁵ Nb(86.6 h)	204.117, 786.198, 820.624
511.842 28	88.3	¹⁰⁶ Ag(8.28 d)	1045.83, 717.24, 450.97	582.082 3	29.96 5	⁹⁵ Tc(61 d)	204.117, 835.149, 786.198
514.0067 19	0.43	⁸⁵ Kr(10.756 y)	362.81, 151.159, 129.820	584.274 12	52.6 14	¹⁵⁰ Eu(35.8 y)	333.971, 439.401, 737.455
514.0067 19	96	⁸⁵ Sr(64.84 d)	868.5, 151.159, 362.81	584.32 2	2.84 20	²⁵⁴ Es(39.3 h)	648.80, 693.79, 688.68
516.18 4	40.7 4	²⁰⁶ Pb(6.243 d)	803.10, 881.01, 1718.70	585.13 5	1.99 8	¹⁹⁵ Hg(9.9 h)	779.80, 61.46, 180.11
518.05 2	13.6 5	¹³⁵ Ce(17.7 h)	265.56, 300.07, 606.76	586.294 6	†94 6	¹⁵² Tb(17.5 h)	344.281, 271.135, 778.91
518.55 7	34.0 11	¹⁹⁰ Ir(11.78 d)	186.718, 605.24, 557.972	587.01 5	4.21 6	¹²⁷ Cs(6.25 h)	411.95, 124.70, 462.31
520.11 7	0.58 4	²⁰² Tl(12.23 d)	439.59, 959.70	587.46 2	15.6 5	¹⁵¹ Tb(17.609 h)	287.357, 251.863, 108.088
520.39 1	44.7 22	⁸³ Rb(86.2 d)	529.635, 552.63, 790.0	587.83 2	0.1108 8	¹³⁵ La(19.5 h)	480.51, 874.51, 220.94
520.639 7	0.558 22	⁷⁷ As(38.83 h)	238.996, 249.786, 87.8671	589.3 1	0.42 9	¹⁴⁶ Pm(5.53 y)	453.88, 735.72, 146.4
520.639 7	22.4 4	⁷⁷ Br(57.036 h)	238.996, 297.215, 249.786	590.44 6	12.06 19	¹⁰¹ Pd(8.47 h)	296.29, 269.67, 24.46
521.175 5	0.389 9	¹⁹⁶ Au(6.183 d)	355.684, 332.983, 1091.331	590.88 1	0.069 3	¹⁴⁹ Pm(53.08 h)	285.95, 859.46, 22.510
526.57 4	45.2	¹²⁸ Sb(9.01 h)	753.82, 743.22, 314.12	592.2	>0.015	²⁴⁸ Bk(23.7 h)	550.7, 41.53
527.900 10	27.45 18	¹¹⁵ Cd(53.46 h)	336.240, 492.3, 260.890	593.31 9	0.00225 19	¹²⁷ Te(109 d)	57.61, 658.89, 650.91
528.24 7	33	⁹⁹ Rh(16.1 d)	353.05, 89.65, 322.41	593.390	11.26 8	⁴³ K(22.3 h)	372.760, 617.490, 396.861
528.96 5	1.39 4	¹²³ I(13.27 h)	158.97, 440.02, 538.54	595.847 6	59.3	⁷⁴ As(17.77 d)	608.353, 1204.208, 887.19
529.635 9	29.3 13	⁸³ Rb(86.2 d)	520.39, 552.63, 790.0	596.56 13	26	⁶² Zn(9.186 h)	40.84, 548.35, 507.60
529.872 11	87.0 17	¹³³ I(20.8 h)	875.329, 1298.223, 510.530	600.5 1	62.3	¹⁹⁴ Ir(171 d)	482.833, 328.455, 687.7
531.016 22	13.1 7	¹⁴⁷ Nd(10.98 d)	91.105, 319.411, 439.895	600.600 4	17.86 5	¹²⁵ Sb(2.7582 y)	427.875, 635.954, 463.365
531.54 4	1.6	¹⁶⁷ Tm(9.25 d)	207.801, 57.0723, 264.9	600.66 5	0.00049	²²⁶ Ra(1600 y)	186.10, 262.27, 414.60
534.318 11	66.6 3	¹⁵⁶ Tb(5.35 d)	199.2132, 1222.36, 88.9667	601.6 2	†0.00049	²⁰⁸ Po(2.898 y)	291.7, 570.4, 861.9
535.61 18	3.46 13	⁸⁵ Y(4.86 h)	231.67, 2123.8, 767.40	602.730 3	97.8 3	¹²⁴ Sb(60.20 d)	1690.980, 722.786, 645.855
536 10	>0.015	²⁴³ Bk(4.5 h)	187.1, 146.4, 41	602.730 3	60	¹²⁴ I(4.18 d)	1690.980, 722.786, 1509.49
536.09 3	99	¹³⁰ I(12.36 h)	668.54, 739.48, 418.01	604.699 15	97.56 32	¹³⁴ Cs(2.062 y)	795.845, 569.315, 801.932
537.261 9	24.39 7	¹⁴⁰ Ba(12.752 d)	29.9640, 162.660, 304.849	605.24 5	39.9 14	¹⁹⁰ Ir(11.78 d)	186.718, 518.55, 557.972
538.11 10	0.0110 9	²³⁶ Np(22.5 h)	642.35, 687.59, 104.234	606.09 10	8.12 20	⁷⁹ Kr(35.04 h)	261.29, 397.54, 306.47
538.54 5	0.382 12	¹²³ I(13.27 h)	158.97, 528.96, 440.02	606.76 2	18.8 5	¹³⁵ Ce(17.7 h)	265.56, 300.07, 518.05
538.90 5	13.7 7	¹⁹¹ Pt(2.9 d)	409.44, 359.90, 82.407	608.151 12	2.90 9	¹³⁵ Xe(9.14 h)	249.770, 408.009, 158.260
539.59 5	78.4 24	¹⁰⁰ Rh(20.8 h)	2376.1, 1553.4, 822.6	608.353 5	0.552 12	⁷⁴ As(17.77 d)	595.847, 1204.208, 887.19
540.18 6	20	¹⁵⁴ Tb(9.4 h)	123.071, 247.925, 649.564	610.062 2	44.2 10	¹⁷² Er(49.3 h)	407.338, 68.107, 446.025
541.32 21	0.060 10	⁹³ Mo(6.85 h)	949.82, 689.07, 385.31	610.33 3	5.75 5	¹⁰³ Ru(39.26 d)	497.080, 443.799, 557.039
544.7 3	17.9 9	¹²⁹ Sb(4.40 h)	812.8, 914.6, 1030.1	610.68 11	3.93 15	¹⁸⁷ Ir(10.5 h)	912.95, 427.12, 400.89
545.0 1	91	²⁰⁹ At(5.41 h)	781.9, 790.2, 195.0	611.293 8	1.021 11	¹⁴⁸ Pm(5.370 d)	1465.12, 550.284, 914.85
545.06 5	†4.6 5	¹⁰¹ Rh(4.34 d)	306.85, 127.23, 179.62	611.293 8	20.5 4	¹⁴⁸ Eu(54.5 d)	550.284, 629.987, 553.231
548.35 11	15.3 8	⁶² Zn(9.186 h)	596.56, 40.84, 507.60	612.00 10	5.7 3	⁸⁶ Zr(16.5 h)	242.80, 29.10, 135.6
548.945 8	3.40 3	¹²⁹ Cs(32.06 h)	371.918, 411.490, 39.578	612.46564 20	4.34 4	¹⁹² Au(4.94 h)	316.50791, 295.95827, 2236.89
550.284 12	94.5 7	¹⁴⁸ Pm(41.29 d)	629.987, 725.673, 1013.808	614.281 6	89.8 18	¹⁰⁸ Ag(418 y)	722.938, 433.937
550.284 12	22.00 16	¹⁴⁸ Pm(5.370 d)	1465.12, 914.85, 611.293	617.490	79.2 6	⁴³ K(22.3 h)	372.760, 396.861, 593.390
550.284 12	98.5 22	¹⁴⁸ Eu(54.5 d)	629.987, 611.293, 553.231	617.8 3	12.0 10	⁹⁹ Rh(4.7 h)	340.71, 1261.2, 936.7
550.7 1	5.0	²⁴⁸ Bk(23.7 h)	592.2, 41.53	618.01 3	98.6 10	¹⁴⁴ Pm(363 d)	696.510, 476.8, 778.5
552.63 2	16.0 7	⁸³ Rb(86.2 d)	520.39, 529.635, 790.0	619.106 4	43.4 4	⁸² Br(35.30 h)	776.517, 554.348, 698.374
553.231 14	12.9 22	¹⁴⁸ Eu(54.5 d)	550.284, 629.987, 611.293	619.106 4	37.976 8	⁸² Rb(6.472 h)	776.517, 554.348, 1044.002
554.348 2	70.8 7	⁸² Br(35.30 h)	776.517, 619.106, 698.374	620.3 2	0.019 3	¹¹¹ Ag(7.45 d)	342.118, 245.422, 96.73
554.348 2	62.4 8	⁸² Rb(6.472 h)	776.517, 619.106, 1044.002	620.7 3	23	¹⁷⁰ Hf(16.01 h)	164.78, 120.17, 572.9
554.60 7	0.000079 5	²⁴⁴ Cm(18.10 y)	42.824, 98.860, 152.63	623.7 3	5.5 3	¹⁰⁹ In(4.2 h)	203.5, 1148.9, 426.25
556.52 4	1.92 19	¹⁰² Rh(207 d)		627.72 10	32.6 10	⁸⁶ Y(14.74 h)	1076.64, 1153.01, 777.35
556.65 5	0.118 4	¹²⁹ Te(33.6 d)	695.88, 729.57, 817.04	628.05 4	†4.4 4	¹⁰² Rh(207 d)	475.070, 1103.16, 468.59
557.039 20	0.8672 9	¹⁰³ Ru(39.26 d)	497.080, 610.33, 443.799	629.95 3	24.8 5	⁷² Ga(14.10 h)	834.01, 2201.69, 2507.82
557.36 6	1.30 12	¹⁹³ Os(30.5 h)	139.03, 460.50, 73.039	629.95 3	7.92 14	⁷² As(26.0 h)	834.01, 1463.95, 1050.73
557.972 14	30.1 9	¹⁹⁰ Ir(11.78 d)	186.718, 605.24, 518.55	629.987 8	89	¹⁴⁸ Pm(41.29 d)	550.284, 725.673, 1013.808
558.454 12	†4.4 3	¹¹⁴ In(49.51 d)	725.298	629.987 8	71.9 16	¹⁴⁸ Eu(54.5 d)	550.284, 611.293, 553.231
559.101 5	45	⁷⁶ As(26.32 h)	657.041, 1216.104, 1212.94	630.19 2	0.95 3	¹³² Cs(6.479 d)	667.718, 505.79, 1317.927
559.101 5	74	⁷⁶ Br(16.2 h)	657.041, 1853.67, 1216.104	630.354 14	0.0230 25	¹⁸⁶ Re(90.64 h)	137.155, 767.508, 333.4
560.13 5	5.4 5	²⁴⁵ Pu(10.5 h)	327.428, 308.222, 376.676	631.28 5	55.9 20	¹⁰² Rh(2.9 y)	475.070, 697.49, 766.84
560.27 4	7	¹⁹⁵ Hg(41.6 h)	261.75, 387.87, 200.38	632.56 10	†0.010	¹³³ Ba(38.9 h)	
561.03 6	100	⁹² Nb(3.47×10 ⁷ y)	934.46	632.80 20	3.6 3	¹¹¹ Pd(5.5 h)	70.44, 391.25, 575.0
561.11 7	0.00015 4	²⁴² Cm(162.8 d)	44.08, 101.90, 157.42	632.99 2	1.25 4	¹⁸⁸ Re(16.98 h)	155.032, 477.99, 931.34
561.67 10	0.013 3	⁹⁵ Nb(34.975 d)	765.794, 204.117	632.99 2	18.3	¹⁸⁸ Ir(41.5 h)	155.032, 2214.62, 477.99
564.119 17	69	¹²² Sb(2.70 d)	692.794, 1256.901, 793.278	633.03 14	2.15 20	¹⁴⁶ Pm(5.53 y)	747.2
567.14 3	0.234 9	¹³² Cs(6.479 d)	464.55, 1031.70	633.03 14	43.7	¹⁴⁶ Eu(4.59 d)	747.2, 634.07, 1533.8
567.14 3	15.7 12	¹³² La(4.8 h)	464.55, 1909.91, 663.07	634.07 11	37.6	¹⁴⁶ Eu(4.59 d)	747.2, 633.03, 1533.8
568.80 12	58.0 3	⁹⁶ Nb(23.35 h)	778.224, 459.88, 849.929	634.26 15	0.036	⁷⁴ As(17.77 d)	634.78, 1269.06
568.84 5	7.1 3	¹⁸⁹ Pt(10.87 h)	721.41, 94.33, 243.37	634.78 10	15.4 5	⁷⁴ As(17.77 d)	634.26, 1269.06
569.31 4	0.873 17	⁹⁷ Ru(2.9 d)	215.718, 324.48, 460.57	635.954 5	11.31 9	¹²⁵ Sb(2.7582 y)	427.875, 600.600, 463.365
569.315 15	15.43 11	¹³⁴ Cs(2.062 y)	604.699, 795.845, 801.932	636.4 3	10.1 7	¹⁹⁸ Tl(5.3 h)	411.8044, 675.8874, 1200.6
569.5 1	8.2 8	²³⁴ Pa(6.70 h)	131.30, 946.00, 883.24	636.989 4	7.17 9	¹³¹ I(8.02070 d)	364.489, 284.305, 80.185
569.702 2	97.74 3	²⁰⁷ Pb(31.55 y)	1063.662, 1770.237, 1442.20	638.03 8	0.00095 4	¹¹³ Sn(115.09 d)	391.690, 255.06, 382.6
570.4 3	†0.0006	²⁰⁸ Po(2.898 y)	291.7, 601.6, 861.9	639.30 14	6.4 13	¹⁸¹ Re(19.9 h)	365.57, 360.70, 953.42
572.9 3	18	¹⁷⁰ Hf(16.01 h)	164.78, 620.7, 120.17	641.285 9	0.0022	¹⁴² Pr(19.12 h)	
573.139 11	80.3 17	¹²¹ Te(16.78 d)	507.591, 470.472, 65.548	642.35 9	0.9	²³⁶ Np(22.5 h)	687.59, 538.11, 104.234
573.25 6	14.2 10	¹⁹³ Hg(11.8 h)	257.97, 407.63, 932.37	643.5 9	0.00024	²³⁶ Pu(2.858 y)	47.574, 108.96, 166.0
574.17 3	0.033	⁶⁹ Zn(13.76 h)		644.01 4	84	¹¹⁹ Te(16.03 h)	699.85, 1749.65, 1413.19
574.17 3	13.3 11	⁶⁹ Ge(39.05 h)	1107.01, 872.14, 1336.72	644.55 7	11.1 5	¹⁰⁵ Ag(41.29 d)	344.520, 280.41, 443.37
574.8 3	0.070 8	²²⁶ Ac(29 h)	230.37, 158.18, 72.20	645.157 16	1.17 4	¹⁹⁴ Ir(19.15 h)	328.455, 293.545, 938.70
575.0 1	3.2 3	¹¹¹ Pd(5.5 h)	70.44, 391.25, 632.80	645.50 10	0.0052 9	²²⁴ Ra(3.66 d)	240.987, 292.70, 422.04
576.0 2	0.065 9	¹⁴⁶ Gd(48.27 d)	154.57, 115.51, 114.71	645.855 2	7.38 5	¹²⁴ Sb(60.20 d)	602.730, 1690.980, 722.786
579.298 13	†72 5	²⁰⁰ Au(18.7 h)					

D-9

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
647.3 1	0.024	¹⁰⁹ Pd(13.7012 h)	88.04, 311.4, 781.4	739.48 3	82 3	¹³⁰ I(12.36 h)	536.09, 668.54, 418.01
648.80 2	28.4 20	²⁵⁴ Es(39.3 h)	693.79, 688.68, 584.32	739.50 2	12.1 4	⁹⁹ Mo(65.94 h)	181.063, 140.511, 777.921
649.42 5	3.8	²¹⁰ Bi(3.04×10 ⁶ y)	265.832, 304.896, 344.52	739.78 2	47.8 7	¹⁷¹ Lu(8.24 d)	19.394, 667.404, 75.878
649.564 11	10.9 6	¹⁵⁴ Tb(9.4 h)	123.071, 247.925, 540.18	741.98 4	1.2×10 ⁻⁶ 4	¹⁴³ Pr(13.57 d)	
650.91 13	0.00028 9	¹²⁷ Te(109 d)	57.61, 658.89, 593.31	741.98 4	39	¹⁴³ Pm(265 d)	
652.12 2	16.25 22	¹⁴⁹ Tb(4.118 h)	352.24, 164.98, 388.57	742.64 8	28.2 4	²⁰⁷ Po(5.80 h)	992.33, 911.79, 405.75
652.43 4	100	⁹⁸ Tc(4.2×10 ⁶ y)	745.36	742.64 8	0.0010 3	²¹¹ At(7.214 h)	669.60
652.9 2	8.0 3	⁹¹ Sr(9.63 h)	1024.3, 749.8, 925.8	743.22 2	100 5	¹²⁸ Sb(9.01 h)	753.82, 314.12, 526.57
653.512 25	15.0 7	¹⁴⁵ Eu(5.93 d)	893.73, 1658.53, 1997.00	743.36 3	93	⁹⁷ Zr(16.91 h)	507.64, 1147.97, 355.40
657.041 5	6.2 3	⁷⁶ As(26.32 h)	559.101, 1216.104, 1212.94	743.971 5	66 18	²⁴⁴ Am(10.1 h)	897.848, 153.863, 99.383
657.041 5	15.9 7	⁷⁶ Br(16.2 h)	559.101, 1853.67, 1216.104	744.233 13	†90.6 4	⁵² Mn(5.591 d)	1434.068, 935.538, 1333.649
657.7622 21	94.0 4	¹¹⁰ Ag(249.79 d)	884.685, 937.493, 1384.300	745.36 4	102 7	⁹⁸ Tc(4.2×10 ⁶ y)	652.43
657.7622 21	98.3 20	¹¹⁰ In(4.9 h)	884.685, 937.493, 707.40	745.9 1	0.207 17	¹⁷⁷ Ta(56.56 h)	112.9498, 208.3664, 1057.8
658.89 6	0.0122 9	¹²⁷ Te(109 d)	57.61, 593.31, 650.91	747.2 1	34.0 16	¹⁴⁶ Pm(5.53 y)	633.03
661.660 3	85.1 2	¹³⁷ Cs(30.07 y)		747.2 1	98	¹⁴⁶ Eu(4.59 d)	633.03, 634.07, 1533.8
662.2 1	†83 9	¹⁷¹ Hf(12.1 h)	122.0, 347.18, 1071.8	748.278 5	0.5250 21	¹⁴⁵ Pr(5.984 h)	675.795, 72.500, 978.969
663.07 3	9.0 6	¹³² La(4.8 h)	464.55, 567.14, 1909.91	748.601 2	8.22 10	¹⁴⁹ Gd(9.28 d)	149.735, 298.634, 346.651
664.571 15	5.69 4	¹⁴³ Ce(33.039 h)	293.266, 57.356, 721.929	749.8 1	23.61 17	⁹¹ Sr(9.63 h)	1024.3, 652.9, 925.8
666.331 12	100	¹²⁶ Sb(12.46 d)	695.03, 414.81, 720.64	749.95 3	†49.5 12	⁵⁶ Ni(5.9 d)	158.38, 811.85, 269.50
666.331 12	33.1 7	¹²⁶ I(13.11 d)	753.819, 1420.17, 2045.17	753.819 13	4.16 9	¹²⁶ I(13.11 d)	666.331, 1420.17, 2045.17
667.404 20	11.04 19	¹⁷¹ Lu(8.24 d)	739.78, 19.394, 75.878	753.82 2	100 5	¹²⁸ Sb(9.01 h)	743.22, 314.12, 526.57
667.718 3	98	¹³² Cs(6.479 d)	630.19, 505.79, 1317.927	755 2	†100	²⁴³ Bk(4.5 h)	946, 840, 87.4
668.54 3	96 3	¹³⁰ I(12.36 h)	536.09, 739.48, 418.01	756.729 12	54	⁹⁵ Zr(64.02 d)	724.199, 235.69
669.60 7	0.0035 6	²¹¹ At(7.214 h)	742.64	762.3 1	0.192 9	¹³⁷ Ce(34.4 h)	824.82, 169.26, 835.38
672.3 1	0.87 3	¹¹³ Ag(5.37 h)	298.58, 258.8, 316.3	762.65 10	30	⁸³ Sr(32.41 h)	381.53, 418.37, 381.17
674.1 1	45	²¹¹ Rn(14.6 h)	1362.9, 678.4, 442.2	765.794 7	100	⁹⁵ Nb(34.975 d)	204.117, 561.67
675.795 5	0.514 7	¹⁴⁵ Pr(5.984 h)	748.278, 72.500, 978.969	765.794 7	93.82 19	⁹⁵ Tc(20.0 h)	1073.71, 947.67, 869.60
675.8874 19	0.804 3	¹⁹⁸ Au(2.69517 d)	411.8044, 1087.6904	766.38 2	0.000022 2	²³⁸ Pu(87.74 y)	43.498, 99.853, 152.720
675.8874 19	11	¹⁹⁸ Tl(5.3 h)	411.8044, 636.4, 1200.6	766.84 6	33.9 20	¹⁰² Rh(2.9 y)	475.070, 631.28, 697.49
676.36 8	15.7 5	¹⁰⁵ Ru(4.44 h)	724.21, 469.37, 316.44	767.1 3	0.199 14	⁴⁷ Ca(4.536 d)	1297.09, 489.23, 807.86
677.516 7	9.8 3	¹⁴⁷ Eu(24.1 d)	197.299, 121.220, 1077.043	767.40 19	3.6 4	⁸⁵ Y(4.86 h)	231.67, 2123.8, 535.61
678.4 1	28.9 14	²¹¹ Rn(14.6 h)	674.1, 1362.9, 442.2	767.508 14	0.0255 25	¹⁸⁶ Re(90.64 h)	137.155, 630.354, 333.4
680.2 1	0.658 14	⁹³ Y(10.18 h)	266.9, 947.1, 1917.8	767.8 1	1.44 8	⁷³ Ga(4.86 h)	297.32, 325.70, 739.42
680.516 10	0.753 18	²⁰³ Pb(51.873 h)	279.1967, 401.323	770.6 2	0.0030 3	⁶⁵ Zn(244.26 d)	1115.546, 344.95
685.7 5	37	¹²⁷ Sb(3.85 d)	473.0, 783.7, 252.4	773.276 14	9.1 3	¹⁸⁶ Ir(16.64 h)	296.911, 137.155, 434.849
685.774 18	27.3 6	¹⁸⁷ W(23.72 h)	479.531, 72.001, 134.243	773.67 3	49.9 5	¹³¹ Te(30 h)	852.21, 793.75, 1125.46
687.0	0.261 6	²¹¹ At(7.214 h)		776.517 3	83.5 8	⁸² Br(35.30 h)	554.348, 619.106, 698.374
687.59 9	0.250 5	²³⁶ Np(22.5 h)	642.35, 538.11, 104.234	776.517 3	84	⁸² Rb(6.472 h)	554.348, 619.106, 1044.002
687.7 1	59 3	¹⁹⁴ Ir(171 d)	482.833, 328.455, 600.5	777.35 10	22.4 6	⁸⁶ Y(14.74 h)	1076.64, 627.72, 1153.01
688.68 2	12.3 9	²⁵⁴ Es(39.3 h)	648.80, 693.79, 584.32	777.921 20	4.28 10	⁹⁹ Mo(65.94 h)	739.50, 181.063, 140.511
689.07 5	0.070 10	⁹⁹ Mo(6.85 h)	949.82, 541.32, 385.31	778.224 15	96.45 19	⁹⁶ Nb(23.35 h)	568.80, 459.88, 849.929
692.03 2	0.157 9	⁵⁷ Co(271.79 d)	122.0614, 136.4743, 14.41300	778.224 15	100	⁹⁶ Tc(4.28 d)	849.929, 812.581, 1126.965
692.794 17	3.78 12	¹²² Sb(2.70 d)	564.119, 1256.901, 793.278	778.5 1	1.51 5	¹⁴⁴ Pm(363 d)	696.510, 618.01, 476.8
693.79 2	24.3 17	²⁵⁴ Es(39.3 h)	648.80, 688.68, 584.32	778.817 10	18.9 4	¹⁶⁶ Tm(7.70 h)	2052.36, 184.410, 1273.540
695.03 2	100	¹²⁶ Sb(12.46 d)	666.331, 414.81, 720.64	778.91 1	12.96 7	¹⁵² Eu(13.542 y)	344.281, 411.115, 1089.700
695.88 6	2.988 12	¹²⁹ Te(33.6 d)	729.57, 556.65, 817.04	778.91 1	†58 4	¹⁵² Tb(17.5 h)	344.281, 586.294, 271.135
696.510 5	99	¹⁴⁴ Pm(363 d)	618.01, 476.8, 778.5	779.80 5	7	¹⁹⁵ Hg(9.9 h)	61.46, 585.13, 180.11
697.49 8	43.9 20	¹⁰² Rh(2.9 y)	475.070, 631.28, 766.84	781.4 2	0.0112 12	¹⁰⁹ Pd(13.7012 h)	88.04, 311.4, 647.3
698.374 5	28.49 25	⁸² Br(35.30 h)	776.517, 554.348, 619.106	781.9 1	83.5 22	²⁰⁹ At(5.41 h)	545.0, 790.2, 195.0
699.85 6	10.1 5	¹¹⁹ Te(16.03 h)	644.01, 1749.65, 1413.19	783.29 9	17	⁵⁰ V(1.4×10 ¹⁷ y)	
702.626 19	97.9 20	⁹⁴ Nb(2.03×10 ⁴ y)	871.082	783.7 5	15.0 3	¹²⁷ Sb(3.85 d)	685.7, 473.0, 252.4
702.626 19	99.6 18	⁹⁴ Tc(293 m)	871.082, 849.74, 916.10	785.09 6	18.3 10	²⁵² Es(471.7 d)	139.03, 924.12, 102.32
703.44 3	31	²⁰⁵ Bi(15.31 d)	1764.36, 987.62, 1043.72	786.198 4	†0.0158 21	⁹⁵ Nb(86.6 h)	204.117, 582.082, 820.624
707.40 2	29.5 10	¹¹⁰ In(4.9 h)	657.7622, 884.685, 937.493	786.198 4	8.66 4	⁹⁵ Tc(61 d)	204.117, 582.082, 835.149
708.06 6	26.4 11	¹³⁹ Nd(5.50 h)	113.94, 737.96, 982.2	788.742 8	34	¹³⁸ La(1.05×10 ¹¹ y)	
711.683 8	55.32 22	¹⁶⁶ Ho(1.20×10 ³ y)	184.410, 810.276, 280.459	790.0 4	0.657 18	⁸³ Rb(86.2 d)	520.39, 529.635, 552.63
717.24 6	28.9 8	¹⁰⁶ Ag(8.28 d)	511.842, 1045.83, 450.97	790.2 1	63.5 17	²⁰⁹ At(5.41 h)	545.0, 781.9, 195.0
717.424 12	3.94 4	¹⁸⁵ Os(93.6 d)	646.116, 874.813, 880.523	792.071 6	37.5 6	¹⁸⁴ Re(38.0 d)	903.279, 111.208, 894.757
717.72 8	4.05 23	¹⁵¹ Pm(28.40 h)	340.08, 167.75, 275.21	793.278 25	0.016 4	¹²² Sb(2.70 d)	564.119, 692.794, 1256.901
720.64 4	53.8 24	¹²⁶ Sb(12.46 d)	695.03, 666.331, 414.81	793.75 3	18.10 25	¹³¹ Te(30 h)	773.67, 852.21, 1125.46
721.41 3	9.3 4	¹⁸⁹ Pt(10.87 h)	94.33, 568.84, 243.37	795.845 22	85.44 38	¹³⁴ Cs(2.062 y)	604.699, 569.315, 801.932
721.929 13	5.39 4	¹⁴³ Ce(33.039 h)	293.266, 57.356, 664.571	796.462 25	0.0665 20	¹⁰⁷ Cd(6.50 h)	93.124, 828.93, 324.81
722.12 8	7.7 5	¹⁵⁴ Tb(21.5 h)	123.071, 1274.436, 2187.10	798.80 4	61 4	²⁴⁶ Bk(1.80 d)	1081.40, 833.60, 1124.29
722.786 4	10.76 10	¹²⁴ Sb(60.20 d)	602.730, 1690.980, 645.855	801.932 22	8.73 4	¹³⁴ Cs(2.062 y)	604.699, 795.845, 569.315
722.786 4	9.98 18	¹²⁴ I(4.18 d)	602.730, 1690.980, 1509.49	803.10 5	99	²⁰⁶ Bi(6.243 d)	881.01, 516.18, 1718.70
722.938 8	90.8 18	¹⁰⁸ Ag(418 y)	433.937, 614.281	803.10 5	0.00121 4	²¹⁰ Po(138.376 d)	
723.304 5	20.22 9	¹⁵⁴ Eu(8.593 y)	123.071, 1274.436, 1004.725	806.372 17	9.5 3	¹⁶⁵ Tm(30.06 h)	242.917, 47.155, 297.369
724.199 5	44.17 13	⁹⁵ Zr(64.02 d)	756.729, 235.69	807.38 8	22.7 5	²⁰⁶ Po(8.8 d)	1032.26, 511.36, 286.410
724.21 8	47	¹⁰⁵ Ru(4.44 h)	469.37, 676.36, 316.44	807.86 10	6.5 4	⁴⁷ Ca(4.536 d)	1297.09, 489.23, 767.1
725.298 10	†4.4 3	¹¹⁴ In(49.51 d)	558.454	810.064 15	16.63 25	¹⁷² Lu(6.70 d)	1093.657, 900.724, 181.528
725.673 9	32.7 3	¹⁴⁸ Pm(41.29 d)	550.284, 629.987, 1013.808	810.276 8	58.08 22	¹⁶⁶ Ho(1.20×10 ³ y)	184.410, 711.683, 280.459
728.18 2	†100 3	¹⁶⁰ Ho(5.02 h)	879.383, 962.317, 966.171	810.764 15	99	⁵⁸ Co(70.82 d)	863.935, 1674.679
729.57 5	0.70 3	¹²⁹ Te(33.6 d)	695.88, 556.65, 817.04	811.79 5	9.70 4	¹⁵⁶ Eu(15.19 d)	88.9667, 1230.68, 1153.67
731.812 13	0.007 3	⁸⁵ Kr(4.480 h)	151.159, 129.820, 450.85	811.85 3	†86.0 9	⁵⁶ Ni(5.9 d)	158.38, 749.95, 269.50
735.72 6	22.5 15	¹⁴⁶ Pm(5.53 y)	453.88, 589.3, 146.4	812.581 15	82 4	⁹⁶ Tc(4.28 d)	778.224, 849.929, 1126.965
737.455 15	9.60 19	¹⁵⁰ Eu(35.8 y)	333.971, 439.401, 584.274	812.8 5	43	¹²⁹ Sb(4.40 h)	914.6, 544.7, 1030.1
737.96 8	35	¹³⁹ Nd(5.50 h)	113.94, 982.2, 708.06	815.772 19	23.28 19	¹⁴⁰ La(1.6781 d)	1596.210, 487.021, 328.762
739.42 5	4.23 24	⁷³ Ga(4.86 h)	297.32, 325.70, 767.8	815.990 4			

D-10

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
817.04 5	0.091 3	¹²⁹ Te(33.6 d)	695.88, 729.57, 556.65	912.95 4	4.79 18	¹⁸⁷ Ir(10.5 h)	427.12, 400.89, 610.68
818.514 12	†100	¹³⁶ Cs(13.16 d)	1048.073, 340.547, 1235.362	914.6 5	20.0 11	¹²⁹ Sb(4.40 h)	812.8, 544.7, 1030.1
820.3 3	30	²⁰³ Bi(11.76 h)	825.2, 896.9, 1847.4	914.85 3	11.46 9	¹⁴⁸ Pm(5.370 d)	1465.12, 550.284, 611.293
820.624 5	†0.00037 21	⁹⁵ Nb(86.6 h)	204.117, 582.082, 786.198	915.55 5	4.13 16	¹²⁵ Sn(9.64 d)	1067.10, 1089.15, 822.48
822.48 5	4.28 16	¹²⁵ Sn(9.64 d)	1067.10, 1089.15, 915.55	916.10 15	7.6 4	⁹⁴ Tc(293 m)	871.082, 702.626, 849.74
822.6 1	20.1 10	¹⁰⁰ Rh(20.8 h)	539.59, 2376.1, 1553.4	918.48 10	8.2 4	²³⁰ Pa(17.4 d)	951.95, 454.95, 898.68
824.82 12	0.44	¹³⁷ Ce(34.4 h)	169.26, 762.3, 835.38	920.932 9	32.0 8	¹⁸⁴ Ta(8.7 h)	414.03, 252.848, 111.208
825.2 1	14.6 7	²⁰³ Bi(11.76 h)	820.3, 896.9, 1847.4	920.932 9	8.14 12	¹⁸⁴ Re(169 d)	252.848, 216.548, 161.269
826.06 3	0.0076 8	⁶⁰ Co(5.2714 y)	1332.501, 1173.237, 346.93	921.17 30	0.210 16	¹⁵⁰ Eu(12.8 h)	333.971, 406.52, 1165.739
828.320 12	10.8 6	²⁰⁰ Tl(26.1 h)	367.943, 1205.717, 579.298	921.5 10	†19 3	²⁴⁴ Bk(4.35 h)	891.5, 217.6, 490.5
828.82 3	72 4	²⁵⁰ Es(8.6 h)	303.41, 349.4, 383.7	923.98 2	2.86 9	²³⁸ Np(2.117 d)	984.45, 1028.54, 1025.87
828.93 3	0.17	¹⁰⁷ Cd(6.50 h)	93.124, 796.462, 324.81	924.12 5	2.41 16	²⁵² Es(471.7 d)	785.09, 139.03, 102.32
833.50 5	5.89 6	⁶⁶ Ga(9.49 h)	1039.30, 2752.01, 2189.85	925.8 2	3.84 3	⁹¹ Sr(9.63 h)	1024.3, 749.8, 652.9
833.60 4	5.0 3	²⁴⁶ Bk(1.80 d)	798.80, 1081.40, 1124.29	929.01 7	20.2 8	¹⁴⁷ Gd(38.06 h)	229.32, 396.00, 370.0
834.01 2	96	⁷² Ga(14.10 h)	2201.69, 629.95, 2507.82	931.3 2	75	⁵⁵ Co(17.53 h)	477.2, 1408.4, 1316.4
834.01 2	80	⁷² As(26.0 h)	629.95, 1463.95, 1050.73	931.34 2	0.545 20	¹⁸⁸ Re(16.98 h)	155.032, 632.99, 477.99
834.848 3	99.976 1	⁵⁴ Mn(312.3 d)		932.37 15	6.7 10	¹⁹³ Hg(11.8 h)	257.97, 407.63, 573.25
835.149 5	26.63 19	⁹⁵ Tc(61 d)	204.117, 582.082, 786.198	933.8 7	2.000 6	¹¹⁵ Cd(44.6 d)	1290.580, 484.470, 1132.570
835.38 12	0.103 4	¹³⁷ Ce(34.4 h)	824.82, 169.26, 762.3	934.46 5	99	⁹² Nb(10.15 d)	912.73, 1847.27, 1132.24
840 40	†30	²⁴³ Bk(4.5 h)	755, 946, 87.4	934.46 5	100	⁹² Nb(3.47×10 ⁷ y)	561.03
841.586 8	14.6 3	¹⁵² Eu(9.274 h)	963.37, 121.7824, 1389.00	935.538 11	†94.9 3	⁵² Mn(5.591 d)	1434.068, 744.233, 1333.649
846.771 5	100	⁵⁶ Co(77.27 d)	1238.282, 2598.459, 1771.351	936.7 4	2.20 6	⁹⁹ Rh(4.7 h)	340.71, 617.8, 1261.2
847.025 25	0.00030 10	¹³⁴ Cs(2.062 y)		937.493 4	34.13 11	¹¹⁰ Ag(249.79 d)	657.7622, 884.685, 1384.300
849.74 7	95.7 18	⁹⁴ Tc(293 m)	871.082, 702.626, 916.10	937.493 4	68.4 14	¹¹⁰ In(4.9 h)	657.7622, 884.685, 707.40
849.929 13	20.45 19	⁹⁶ Nb(23.35 h)	778.224, 568.80, 459.88	938.70 2	0.599 18	¹⁹⁴ Ir(19.15 h)	328.455, 293.545, 645.157
849.929 13	98 4	⁹⁶ Tc(4.28 d)	778.224, 812.581, 1126.965	941.72 5	38.3 10	²⁸ Mg(20.91 h)	30.6383, 1342.27, 400.56
850.647 24	0.065 13	⁸⁸ Y(106.65 d)	1836.063, 898.042, 2734.086	944.09 5	44	¹⁵⁸ Tb(180 y)	962.06, 79.5104, 181.930
851.474 17	4.56 3	¹⁸³ Os(13.0 h)	381.768, 114.463, 167.844	944.104 7	7.76 9	⁴⁸ V(15.9735 d)	983.517, 1312.096, 2240.375
852.21 3	27.0 6	¹³¹ Te(30 h)	773.67, 793.75, 1125.46	945.96 8	7.4 6	²⁰¹ Pb(9.33 h)	331.19, 361.27, 907.56
859.46 6	0.109 3	¹⁴⁹ Pm(53.08 h)	285.95, 590.88, 22.510	946.00 3	13.4 8	²³⁴ Pa(6.70 h)	131.30, 883.24, 569.5
861.8	†100	²⁵⁶ Es(7.6 h)	231.1, 172.6, 1092.9	946 2	†80	²⁴³ Bk(4.5 h)	755, 840, 87.4
861.9 2	†0.00034	²⁰⁸ Po(2.898 y)	291.7, 570.4, 601.6	947.1 1	2.09 11	⁹³ Y(10.18 h)	266.9, 1917.8, 680.2
863.935 18	0.683 11	⁵⁸ Co(70.82 d)	810.764, 1674.679	947.67 2	1.951 19	⁹⁵ Tc(20.0 h)	765.794, 1073.71, 869.60
865.09 12	0.584 18	⁷³ Se(7.15 h)	360.80, 67.03, 510	949.82 3	0.120 10	⁹³ Mo(6.85 h)	689.07, 541.32, 385.31
868.5 4	0.0120 5	⁸⁵ Sr(64.84 d)	514.0067, 151.159, 362.81	951.95 5	1.65 14	²³⁰ Pa(17.4 d)	918.48, 454.95, 898.68
869.60 3	0.317 8	⁹⁵ Tc(20.0 h)	765.794, 1073.71, 947.67	953.42 16	3.6 9	¹⁸¹ Re(19.9 h)	365.57, 360.70, 639.30
871.082 18	100	⁹⁴ Nb(2.03×10 ⁴ y)	702.626	959.70 7	0.069 6	²⁰² Tl(12.23 d)	439.59, 520.11
871.082 18	100	⁹⁴ Tc(293 m)	702.626, 849.74, 916.10	960.622 20	23.4 5	¹⁶³ Lu(34.06 h)	191.2137, 1449.74, 889.753
872.14 3	11.9 9	⁶⁹ Ge(39.05 h)	1107.01, 574.17, 1336.72	962.06 4	20.3 4	¹⁵⁸ Tb(180 y)	944.09, 79.5104, 181.930
874.51 2	0.164 3	¹³⁵ La(19.5 h)	480.51, 587.83, 220.94	962.317 4	†59.1 23	¹⁶⁰ Ho(5.02 h)	728.18, 879.383, 966.171
874.813 13	6.29 6	¹⁸⁵ Os(93.6 d)	646.116, 880.523, 717.424	963.37 1	12.01 10	¹⁵² Eu(9.274 h)	841.586, 121.7824, 1389.00
875.329 11	4.51 10	¹³³ I(20.8 h)	529.872, 1298.223, 510.530	964.131 9	14.34 19	¹⁵² Eu(13.542 y)	121.7824, 1408.011, 1112.116
879.383 3	30.01 18	¹⁶⁰ Tb(72.3 d)	298.580, 966.171, 1177.962	964.770 10	5.11 13	²²⁸ Ac(6.15 h)	911.205, 968.971, 338.322
879.383 3	†65.9 23	¹⁶⁰ Ho(5.02 h)	728.18, 962.317, 966.171	964.770 10	4.25 13	²²⁸ Pa(22 h)	911.205, 463.005, 968.971
879.876 13	0.754 17	¹²⁶ I(13.11 d)	388.633, 491.243	966.171 3	25.21 15	¹⁶⁰ Tb(72.3 d)	879.383, 298.580, 1177.962
880.523 13	5.17 6	¹⁸⁵ Os(93.6 d)	646.116, 874.813, 717.424	966.171 3	†54.5 23	¹⁶⁰ Ho(5.02 h)	728.18, 879.383, 962.317
880.8 1	2.19 11	²⁵¹ Fm(5.30 h)	453.1, 405.6, 349.9	968.971 10	16.2 3	²²⁸ Ac(6.15 h)	911.205, 338.322, 964.770
881.01 5	66.2 7	²⁰⁶ Bi(6.243 d)	803.10, 516.18, 1718.70	968.971 10	3.88 19	²²⁸ Pa(22 h)	911.205, 463.005, 964.770
881.610 3	69	⁸⁴ Rb(32.77 d)	1897.761, 1016.162	969.315 11	41.6 19	²³² Pa(1.31 d)	894.351, 150.059, 453.655
883.24 4	9.6 6	²³⁴ Pa(6.70 h)	131.30, 946.00, 569.5	970.38 3	0.604 20	¹⁵² Eu(9.274 h)	344.281, 1314.67, 271.135
884.685 3	72.2 3	¹¹⁰ Ag(249.79 d)	657.7622, 937.493, 1384.300	978.969 15	0.256 5	¹⁴⁵ Pr(5.984 h)	748.278, 675.795, 72.500
884.685 3	92.9 19	¹¹⁰ In(4.9 h)	657.7622, 937.493, 707.40	982.2 2	26.4 8	¹³⁹ Nd(5.50 h)	113.94, 737.96, 708.06
887.19 7	0.0255 12	⁷⁴ As(17.77 d)	595.847, 608.353, 1204.208	983.517 5	100.1 3	⁴⁸ Sc(43.67 h)	1312.096, 1037.599, 175.361
888.80 5	25.1 4	²⁴⁰ Am(50.8 h)	987.76, 98.860, 42.824	983.517 5	99.98 20	⁴⁸ V(15.9735 d)	1312.096, 944.104, 2240.375
889.277 3	99.984 1	⁴⁶ Sc(83.79 d)	1120.545, 2010	984.02 2	59 3	²⁰⁴ Bi(11.22 h)	899.15, 374.72, 911.78
889.753 21	5.36 14	¹⁷² Lu(34.06 h)	960.622, 191.2137, 1449.74	984.45 2	27.8	²³⁸ Np(2.117 d)	1028.54, 1025.87, 923.98
891.5 10	†100 11	²⁴⁴ Bk(4.35 h)	217.6, 921.5, 490.5	985.10 10	0.896 18	¹⁷⁰ Lu(2.00 d)	84.2551, 1280.25, 2041.88
893.73 3	66 3	¹⁴⁵ Eu(5.93 d)	653.512, 1658.53, 1997.00	987.62 3	0.585 16	²⁰⁶ Bi(15.31 d)	1764.36, 703.44, 1043.72
894.351 12	19.8 3	²³² Pa(1.31 d)	969.315, 150.059, 453.655	987.76 6	73.2 10	²⁴⁰ Am(50.8 h)	888.80, 98.860, 42.824
894.757 6	15.6 3	¹⁸⁴ Re(38.0 d)	903.279, 792.071, 111.208	992.128 13	0.546 11	¹⁷⁴ Lu(142 d)	272.918, 176.645, 76.471
896.28 6	0.47	²⁰⁹ Po(102 y)		992.33 9	59.3 7	²⁰⁷ Po(5.80 h)	742.64, 911.79, 405.75
896.9 3	13	²⁰³ Bi(11.76 h)	820.3, 825.2, 1847.4	996.82	0.0014 2	²⁴ Na(14.9590 h)	1368.633, 2754.028, 3866.19
897.848 7	28 8	²⁴⁴ Am(10.1 h)	743.971, 153.863, 99.383	998.291 11	0.0796 18	¹²¹ Te(154 d)	1102.149, 37.138, 909.847
898.042 3	93.7 3	⁸⁸ Y(106.65 d)	1836.063, 2734.086, 850.647	1001.85	1.2	⁴⁴ Sc(58.6 h)	1126.08, 1157.031
898.68 10	5.8 3	²³⁰ Pa(17.4 d)	951.95, 918.48, 454.95	1004.725 6	18.01 5	¹⁵⁴ Eu(8.593 y)	123.071, 1274.436, 723.304
899.15 3	98 8	²⁰⁴ Bi(11.22 h)	374.72, 984.02, 911.78	1013.808 11	20.20 17	¹⁴⁸ Pm(41.29 d)	550.284, 629.987, 725.673
899.43	0.0515 25	⁴² K(12.360 h)	1524.70, 312.6, 1922.18	1016.162 13	0.349 10	⁸⁴ Rb(32.77 d)	881.610, 1897.761
900.724 20	29.8 4	¹⁷² Lu(34.06 h)	1093.657, 181.528, 810.064	1021.00 20	0.00193 10	¹²³ Sn(129.2 d)	1088.64, 1030.23, 160.33
903.279 7	37.9 6	¹⁸⁴ Re(38.0 d)	792.071, 111.208, 894.757	1023.1 2	99.4 3	¹²⁰ Sb(5.76 d)	1171.3, 197.3, 89.9
907.56 11	5.7 3	²⁰¹ Pb(9.33 h)	331.19, 361.27, 945.96	1024.3 1	33	⁹¹ Sr(9.63 h)	749.8, 652.9, 925.8
908.96 4	†0.010	⁸⁹ Sr(50.53 d)		1025.87 2	9.6 5	²³⁸ Np(2.117 d)	984.45, 1028.54, 923.98
908.96 4	100	⁸⁹ Zr(78.41 h)	1713.06, 1744.52, 1657.28	1028.54 2	20.3 8	²³⁸ Np(2.117 d)	984.45, 1028.57, 923.98
909.847 18	0.0703 15	¹²¹ Te(154 d)	1102.149, 37.138, 998.291	1030.1 6	12.6 8	¹²⁹ Sb(4.40 h)	812.8, 914.6, 544.7
911.205 4	26.6 7	²²⁸ Ac(6.15 h)	968.971, 338.322, 964.770	1030.23 10	0.0310 12	¹²³ Sn(129.2 d)	1088.64, 1021.00, 160.33
911.205 4	4.19 7	²²⁸ Pa(22 h)	463.005, 964.770, 968.971	1031.70 3	0.125 5	¹³² Cs(6.479 d)	464.55, 567.14
911.78 7	13.5 16	²⁰⁴ Bi(11.22 h)	899.15, 374.72, 984.02	1032.26 10	32.9 7	²⁰⁶ Po(8.8 d)	511.36, 286.410, 807.38
911.79 9	16.95 24	²⁰⁷ Po(5.80 h)	992.33, 742.64, 405.75				

D-11

$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays	$E_{\gamma}(\Delta E)$	$I_{\gamma}(\Delta I)$	Decay Parent	Associated γ -rays
1039.30 5	37	⁶⁶ Ga(9.49 h)	2752.01, 833.50, 2189.85	1224.93 7	6	¹⁷⁶ Ta(8.09 h)	1159.28, 88.34, 201.83
1039.902 17		⁵² Fe(8.275 h)	168.684, 377.738	1229.68 3	100	¹¹⁸ Sb(5.00 h)	253.68, 1050.69, 41.0
1043.72 3	1.291 9	²⁰⁵ Bi(15.31 d)	1764.36, 703.44, 987.62	1230.68 6	7.98 3	¹⁵⁶ Eu(15.19 d)	811.79, 88.9667, 1153.67
1044.002 5	32.068 8	⁸² Rb(6.472 h)	776.517, 554.348, 619.106	1235.362 23	†20.1 7	¹³⁶ Cs(13.16 d)	818.514, 1048.073, 340.547
1045.83 8	29.6 10	¹⁰⁶ Ag(8.28 d)	511.842, 717.24, 450.97	1238.282 7	67.6 4	⁵⁶ Co(77.27 d)	846.771, 2598.459, 1771.351
1048.073 20	†80 3	¹³⁶ Cs(13.16 d)	818.514, 340.547, 1235.362	1241.847 6	5.14 10	¹⁷⁴ Lu(3.31 y)	76.471, 1318.296, 1065.04
1050.69 3	97 6	¹¹⁸ Sb(5.00 h)	1229.68, 253.68, 41.0	1256.90 19	0.80 4	¹²² Sb(2.70 d)	564.119, 692.794, 793.278
1050.73 4	0.984 21	⁷² As(26.0 h)	834.01, 629.95, 1463.95	1260.409 17	28.90 17	¹³⁵ I(6.57 h)	1131.511, 1678.027, 1457.56
1057.8 1	0.29 3	¹⁷⁷ Ta(56.56 h)	112.9498, 208.3664, 745.9	1261.2 4	11	⁹⁹ Rh(4.7 h)	340.71, 617.8, 936.7
1063.662 4	74.5 2	²⁰⁷ Pb(31.55 y)	569.702, 1770.237, 1442.20	1269.06 10	0.0018 6	⁷⁴ As(17.77 d)	634.78, 634.26
1065.04 8	0.0164 21	¹⁷⁴ Lu(3.31 y)	76.471, 1241.847, 1318.296	1273.540 16	14.9 3	¹⁶⁶ Tm(7.70 h)	778.817, 2052.36, 184.410
1067.10 5	10	¹²⁵ Sn(9.64 d)	1089.15, 822.48, 915.55	1274.436 6	35.19 18	¹⁵⁴ Eu(8.593 y)	123.071, 723.304, 1004.725
1071.8 1	†46 5	¹⁷¹ Hf(12.1 h)	122.0, 662.2, 347.18	1274.436 6	10.5 7	¹⁵⁴ Tb(21.5 h)	123.071, 2187.10, 722.12
1073.71 2	3.74 4	⁹⁵ Tc(20.0 h)	765.794, 947.67, 869.60	1274.53 2	99.944 14	²² Na(2.6019 y)	
1076.64 4	9	⁸⁶ Rb(18.631 d)		1280.25 10	3.450 22	¹⁷⁰ Lu(2.00 d)	84.2551, 2041.88, 985.10
1076.64 4	83	⁸⁶ Y(14.74 h)	627.72, 1153.01, 777.35	1290.580 10	0.890 14	¹¹⁵ Cd(44.6 d)	933.8, 484.470, 1132.570
1077.043 6	6.15 19	¹⁴⁷ Eu(24.1 d)	197.299, 121.220, 677.516	1291.596 7	43.2 11	⁵⁹ Fe(44.503 d)	1099.251, 192.349, 142.652
1081.40 6	5.8 4	²⁴⁶ Bk(1.80 d)	798.80, 833.60, 1124.29	1297.09 10	74	⁴⁷ Ca(4.536 d)	489.23, 807.86, 767.1
1087.6904 29	0.159 2	¹⁹⁸ Au(2.69517 d)	411.8044, 675.8874	1298.223 11	2.35 5	¹³³ I(20.8 h)	529.872, 875.329, 510.530
1088.64 10	0.6	¹²³ Sn(129.2 d)	1030.23, 1021.00, 160.33	1312.096 6	100.1 5	⁴⁸ Sc(43.67 h)	983.517, 1037.599, 175.361
1089.15 10	4.59 16	¹²⁵ Sn(9.64 d)	1067.10, 822.48, 915.55	1312.096 6	97.5 8	⁴⁸ V(15.9735 d)	983.517, 944.104, 2240.375
1089.700 15	1.710 21	¹⁵² Eu(13.542 y)	344.281, 778.91, 411.115	1314.67 1	0.956 15	¹⁵² Eu(9.274 h)	344.281, 970.38, 271.135
1089.8	>2.8	¹⁵⁵ Dy(9.9 h)	226.918, 184.564, 1090.0	1316.4 2	7.09 10	⁵⁵ Co(17.53 h)	931.3, 477.2, 1408.4
1090.0	>2.8	¹⁵⁵ Dy(9.9 h)	226.918, 184.564, 1089.8	1317.927 7	0.585 20	¹³² Cs(6.479 d)	667.718, 630.19, 505.79
1091.331 17	0.149 6	¹⁹⁶ Au(6.183 d)	355.684, 332.983, 521.175	1318.296 10	0.035 3	¹⁷⁴ Lu(3.31 y)	76.471, 1241.847, 1065.04
1092.9	†47	²⁵⁶ Es(7.6 h)	861.8, 231.1, 172.6	1332.501 5	99.9820 10	⁶⁰ Co(5.2714 y)	1173.237, 346.93, 826.06
1093.657 13	6.0 3	¹⁷² Tm(63.6 h)	78.7435, 1387.093, 1529.72	1333.649 17	†5.07 3	⁵² Mn(5.591 d)	1434.068, 935.538, 744.233
1093.657 13	62.5 13	¹⁷² Lu(6.70 d)	900.724, 181.528, 810.064	1336.72 6	4.5 4	⁶⁹ Ge(39.05 h)	1107.01, 574.17, 872.14
1095.490 10	4.08 6	⁷¹ As(65.28 h)	174.954, 499.876, 326.785	1342.27 4	52.6 16	²⁸ Mg(20.91 h)	30.6383, 941.72, 400.56
1099.251 4	56.5 15	⁵⁹ Fe(44.503 d)	1291.596, 192.349, 142.652	1345.77 6	0.473 10	⁶⁴ Cu(12.700 h)	
1101.94 4	49.0 5	¹⁸³ Os(9.9 h)	1107.92, 1034.85, 484.40	1347.33 1	0.47	¹³⁹ Pr(4.41 h)	1630.67, 255.11, 1375.56
1102.149 18	2.54 6	¹²¹ Te(154 d)	37.138, 998.291, 909.847	1362.9 1	32.5 18	²¹¹ Rn(14.6 h)	674.1, 678.4, 442.2
1103.16 4	†2.81 10	¹⁰² Rh(207 d)	475.070, 628.05, 468.59	1368.633	100	²⁴ Na(14.9590 h)	2754.028, 3866.19, 996.82
1107.01 6	36	⁶⁹ Ge(39.05 h)	574.17, 872.14, 1336.72	1375.56 3	0.154 7	¹³⁹ Pr(4.41 h)	1347.33, 1630.67, 255.11
1107.92 4	22.36 20	¹⁸³ Os(9.9 h)	1101.94, 1034.85, 484.40	1377.63 3	81.7 16	⁵⁷ Ni(35.60 h)	127.164, 1919.52, 1757.55
1112.116 17	13.55 19	¹⁵² Eu(13.542 y)	121.7824, 1408.011, 964.131	1379.40 6	0.93 3	¹⁶⁶ Ho(26.83 h)	80.574, 1581.89, 1662.48
1115.546 4	50.60 24	⁶⁵ Zn(244.26 d)	344.95, 770.6	1384.300 5	24.12 8	¹¹⁰ Ag(249.79 d)	657.7622, 884.685, 937.493
1120.545 4	99.987 1	⁴⁶ Sc(83.79 d)	889.277, 2010	1387.093 4	5.6 3	¹⁷² Tm(63.6 h)	78.7435, 1093.657, 1529.72
1121.3007 5	34.9 1	¹⁸² Ta(114.43 d)	67.75001, 1221.4066, 1189.0503	1389.00 1	0.770 23	¹⁵² Eu(9.274 h)	841.586, 963.37, 121.7824
1121.3007 5	32	¹⁸² Re(12.7 h)	67.75001, 1221.4066, 1189.0503	1408.011 14	20.87 6	¹⁵² Eu(13.542 y)	121.7824, 964.131, 1112.116
1121.3007 5	22.0 6	¹⁸² Re(64.0 h)	229.3220, 67.75001, 1221.4066	1408.4 2	16.88 8	⁵⁵ Co(17.53 h)	931.3, 477.2, 1316.4
1124.29 4	4.4	²⁴⁶ Bk(1.80 d)	798.80, 1081.40, 833.60	1413.19 8	1.09 8	¹¹⁹ Te(16.03 h)	644.01, 699.85, 1749.65
1125.46 4	14.9 3	¹³¹ Te(30 h)	773.67, 852.21, 793.75	1419.81 8	46 3	¹⁵⁴ Tb(22.7 h)	247.925, 346.643, 123.071
1126.08	1.2	⁴⁴ Sc(58.6 h)	1001.85, 1157.031	1420.17 2	0.295 6	¹²⁶ I(13.11 d)	666.331, 753.819, 2045.17
1126.965 21	15.2 12	⁹⁶ Tc(4.28 d)	778.224, 849.929, 812.581	1434.068 14	†100.0 3	⁵² Mn(5.591 d)	935.538, 744.233, 1333.649
1129.224 15	92.7 4	⁹⁰ Nb(14.60 h)	2318.968, 141.178, 2186.242	1435.36 4	6.38 25	²³⁴ Np(4.4 d)	1558.31, 1527.21, 1601.80
1129.65	2.4 2	²⁶ Al(7.4×10 ⁵ y)	1808.63, 2938.20	1435.795 10	66	¹³⁸ La(1.05×10 ¹¹ y)	
1131.511 18	22.74 14	¹³⁵ I(6.57 h)	1260.409, 1678.027, 1457.56	1436.70 2	29.0 13	²¹⁰ At(8.1 h)	1181.39, 245.31, 1483.39
1132.24 8	0.005	⁹² Nb(10.15 d)	934.46, 912.73, 1847.27	1442.20 9	0.130 3	²⁰⁷ Pb(31.55 y)	569.702, 1063.662, 1770.237
1132.570 10	0.0856 10	¹¹⁵ Cd(44.6 d)	933.8, 1290.580, 484.470	1449.74 4	9.92 21	¹⁶⁹ Lu(34.06 h)	960.622, 191.2137, 889.753
1136.75 7	7.66 7	¹¹⁹ Te(4.70 d)	153.59, 1212.73, 270.53	1457.56 3	8.73 6	¹³⁵ I(6.57 h)	1260.409, 1131.511, 1678.027
1140.55 3	0.7	¹²² Sb(2.70 d)		1460.830 11		⁴⁰ K(1.277×10 ⁹ y)	
1147.97 8	2.61 10	⁹⁷ Zr(16.91 h)	743.36, 507.64, 355.40	1463.95 15	1.107 19	⁷² As(26.0 h)	834.01, 629.95, 1050.73
1148.9 4	4.3 4	¹⁰⁹ In(4.2 h)	203.5, 623.7, 426.25	1465.12 3	22	¹⁴⁸ Pm(5.370 d)	550.284, 914.85, 611.293
1153.01 4	30.5 9	⁸⁶ Y(14.74 h)	1076.64, 627.72, 777.35	1468.91 4	6.3 4	¹⁹⁴ Au(38.02 h)	328.455, 293.545, 2043.67
1153.67 10	6.79 6	¹⁵⁶ Eu(15.19 d)	811.79, 88.9667, 1230.68	1483.39 2	46.5 20	²¹⁰ At(8.1 h)	1181.39, 245.31, 1436.70
1157.031	1.2	⁴⁴ Sc(58.6 h)	1001.85, 1126.08	1509.49 4	2.989 24	¹²⁴ I(4.18 d)	602.730, 1690.980, 722.786
1159.28 9	25	¹⁷⁶ Ta(8.09 h)	88.34, 1224.93, 201.83	1524.70	18	⁴² K(12.360 h)	312.6, 899.43, 1922.18
1165.739 27	0.257 24	¹⁵⁰ Eu(12.8 h)	333.971, 406.52, 921.17	1527.21 4	11.2 5	²³⁴ Np(4.4 d)	1558.31, 1601.80, 1435.36
1171.3 2	100	¹²⁰ Sb(5.76 d)	1023.1, 197.3, 89.9	1529.72 4	5.1 3	¹⁷² Tm(63.6 h)	78.7435, 1093.657, 1387.093
1173.237 4	99.90 2	⁶⁰ Co(5.2714 y)	1332.501, 346.93, 826.06	1533.8 2	6.05 15	¹⁴⁶ Eu(4.59 d)	747.2, 633.03, 634.07
1177.962 4	15.07 9	¹⁶⁰ Tb(72.3 d)	879.383, 298.580, 966.171	1553.4 2	21	¹⁰⁰ Rh(20.8 h)	539.59, 2376.1, 822.6
1181.39 1	99.3 25	²¹⁰ At(8.1 h)	245.31, 1483.39, 1436.70	1553.768 8	83	⁵⁰ V(1.4×10 ¹⁷ y)	
1189.0503 5	16.23 4	¹⁸² Ta(114.43 d)	67.75001, 1121.3007, 1221.4066	1558.31 4	18.72 20	²³⁴ Np(4.4 d)	1527.21, 1601.80, 1435.36
1189.0503 5	15.0 6	¹⁸² Re(12.7 h)	67.75001, 1121.3007, 1221.4066	1575.85 15	3.7	¹⁴² Pr(19.12 h)	508.8
1200.6 2	9.7 10	¹⁹⁸ Tl(5.3 h)	411.8044, 675.8874, 636.4	1581.89 8	0.187 4	¹⁶⁶ Ho(26.83 h)	80.574, 1379.40, 1662.48
1204.208 12	0.285 18	⁷⁴ As(17.77 d)	595.847, 608.353, 887.19	1596.210 35	95	¹⁴⁰ La(1.6781 d)	487.021, 815.772, 328.762
1204.77 6	0.30	⁹¹ Y(58.51 d)		1601.80 4	9.1 4	²³⁴ Np(4.4 d)	1558.31, 1527.21, 1435.36
1204.77 6	2.9	⁹¹ Nb(60.86 d)		1630.67 2	0.343 10	¹³⁹ Pr(4.41 h)	1347.33, 255.11, 1375.56
1205.717 14	29.9 17	²⁰⁰ Tl(26.1 h)	367.943, 579.298, 828.320	1657.28 14	0.107 4	⁸⁹ Zr(78.41 h)	908.96, 1713.06, 1744.52
1212.73 7	66	¹¹⁹ Te(4.70 d)	153.59, 270.53, 1136.75	1658.53 5	14.9 8	¹⁴⁵ Eu(5.93 d)	893.73, 653.512, 1997.00
1212.94 4	1.44 9	⁷⁶ As(26.32 h)	559.101, 657.041, 1216.104	1662.48 8	0.120 2	¹⁶⁶ Ho(26.83 h)	80.574, 1379.40, 1581.89
1216.104 20	3.42 18	⁷⁶ As(26.32 h)	559.101, 657.041, 1212.94	1674.679 36	0.518 8	⁵⁸ Co(70.82 d)	810.764, 863.935
1216.104 20	8.8 4	⁷⁶ Br(16.2 h)	559.101, 657.041, 1853.67	1678.027 21	9.62 20	¹³⁵ I(6.57 h)	1260.409, 1131.511, 1457.56
1221.4066 5	26.98 10	¹⁸² Ta(114.43 d)	67.75001, 1121.3007, 1189.0503	1690.980 4	47.3 6	¹²⁴ Sb(60.20 d)	602.730, 722.786, 645.855
1221.4066 5	24.8 10	¹⁸² Re(12.7 h)	67.75001, 1121.3007, 1189.0503	1690.980 4	10.4 12	^{124</}	

$E_\gamma(\Delta E)$	$I_\gamma(\Delta I)$	Decay Parent	Associated γ -rays
1744.52 ¹⁵	0.129 ³	⁸⁹ Zr(78.41 h)	908.96, 1713.06, 1657.28
1749.65 ⁸	3.95 ²⁵	¹¹⁹ Te(16.03 h)	644.01, 699.85, 1413.19
1757.55 ³	5.75 ¹⁶	⁵⁷ Ni(35.60 h)	1377.63, 127.164, 1919.52
1764.36 ⁴	1.368 ⁶	²⁰⁵ Bi(15.31 d)	703.44, 987.62, 1043.72
1770.237 ¹⁰	6.87 ⁴	²⁰⁷ Bi(31.55 y)	569.702, 1063.662, 1442.20
1771.351 ¹⁶	15.69 ¹⁵	⁵⁶ Co(77.27 d)	846.771, 1238.282, 2598.459
1808.63	99.73 ⁸	²⁶ Al(7.4×10^5 y)	1129.65, 2938.20
1828.8	10	¹⁸⁵ Ir(14.4 h)	254.4, 60.0, 97.4
1836.063 ¹²	99.2 ³	⁸⁸ Y(106.65 d)	898.042, 2734.086, 850.647
1847.27 ⁸	0.85 ⁴	⁹² Nb(10.15 d)	934.46, 912.73, 1132.24
1847.4 ³	11.4 ⁶	²⁰³ Bi(11.76 h)	820.3, 825.2, 896.9
1853.67 ⁵	14.7 ⁷	⁷⁶ Br(16.2 h)	559.101, 657.041, 1216.104
1897.761 ¹⁴	0.738 ²¹	⁸⁴ Rb(32.77 d)	881.610, 1016.162
1909.91 ⁴	9.0 ⁶	¹³² La(4.8 h)	464.55, 567.14, 663.07
1917.8 ¹	1.55 ³	⁹³ Y(10.18 h)	266.9, 947.1, 680.2
1919.52 ⁵	12.26 ²⁵	⁵⁷ Ni(35.60 h)	1377.63, 127.164, 1757.55
1922.18	0.041 ⁴	⁴² K(12.360 h)	1524.70, 312.6, 899.43
1997.00 ⁴	7.2 ⁴	¹⁴⁵ Eu(5.93 d)	893.73, 653.512, 1658.53
2010	0.000013 ¹⁰	⁴⁶ Sc(83.79 d)	1120.545, 889.277
2041.88 ¹⁰	1.434 ¹⁸	¹⁷⁰ Lu(2.00 d)	84.2551, 1280.25, 985.10
2043.67 ⁵	3.54 ¹⁸	¹⁹⁴ Au(38.02 h)	328.455, 293.545, 1468.91
2045.17 ²	0.0046 ³	¹²⁶ I(13.11 d)	666.331, 753.819, 1420.17
2052.36 ³	17.2 ³	¹⁶⁶ Tm(7.70 h)	778.817, 184.410, 1273.540
2123.8 ²	5.0 ³	⁸⁵ Y(4.86 h)	231.67, 767.40, 535.61
2186.242 ²⁵	1.4×10^{-6} ³	⁹⁰ Y(64.10 h)	
2186.242 ²⁵	17.96 ¹⁶	⁹⁰ Nb(14.60 h)	1129.224, 2318.968, 141.178
2187.10 ¹⁶	9.9 ⁶	¹⁵⁴ Tb(21.5 h)	123.071, 1274.436, 722.12
2189.85 ⁶	5.60 ⁷	⁶⁶ Ga(9.49 h)	1039.30, 2752.01, 833.50
2201.69 ⁵	25.9 ⁵	⁷² Ga(14.10 h)	834.01, 629.95, 2507.82
2214.62 ²⁰	18.7 ¹³	¹⁸⁸ Ir(41.5 h)	155.032, 632.99, 477.99
2236.89 ¹⁷	5.6 ⁶	¹⁹² Au(4.94 h)	316.50791, 295.95827, 612.46564
2240.375 ¹⁹	2.41 ⁴	⁴⁸ V(15.9735 d)	983.517, 1312.096, 944.104
2318.968 ¹⁰	82.03 ¹⁶	⁹⁰ Nb(14.60 h)	1129.224, 141.178, 2186.242
2376.1 ³	35.3 ²⁴	¹⁰⁰ Rh(20.8 h)	539.59, 1553.4, 822.6
2507.82 ⁶	12.78 ²³	⁷² Ga(14.10 h)	834.01, 2201.69, 629.95
2598.459 ¹³	17.28 ¹⁵	⁵⁶ Co(77.27 d)	846.771, 1238.282, 1771.351
2614.533 ¹³	100	²⁰⁸ Bi(3.68×10^5 y)	
2734.086 ¹³	0.71 ⁷	⁸⁸ Y(106.65 d)	1836.063, 898.042, 850.647
2752.01 ¹⁵	23.38 ²²	⁶⁶ Ga(9.49 h)	1039.30, 833.50, 2189.85
2754.028	99.944 ⁴	²⁴ Na(14.9590 h)	1368.633, 3866.19, 996.82
2938.20	0.27 ³	²⁶ Al(7.4×10^5 y)	1808.63, 1129.65
3866.19	0.052 ⁴	²⁴ Na(14.9590 h)	1368.633, 2754.028, 996.82