

Experimental Nuclear Masses

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Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹ n	8071.323 2		782.354 2			
¹ H	7288.969 1					
² H	13135.720 1	2224.573 2			2224.57	2224.57
³ H	14949.794 2	8481.821 4	18.591 1		6257.25	
³ He	14931.203 2	7718.058 3				5493.49
⁴ H	26000 110	5500 110	23580 110		-2980 110	
⁴ He	2424.911 1	28295.674 5			20577.62	19813.85
⁴ Li	25320 210	4620 210		22900 210		-3100 210
⁵ H	38500 700	1100 700	27100 700		-4400 700	
⁵ He	11390 50	27410 50			-890 50	21900 120
⁵ Li	11680 50	26330 50		290 70	21710 220	-1970 50
⁶ H	41900 300	5800 300	24300 300		4700 700	
⁶ He	17594.1 10	29269.1 10	3507.8 9		1860 50	28200 700
⁶ Li	14086.3 5	31994.5 5			5660 50	4590 50
⁶ Be	18374 5	26924 5		4288 5		590 50
⁷ He	26110 30	28820 30	11200 30		-440 30	23000 300
⁷ Li	14907.7 5	39244.5 5			7249.96 9	9975.4 9
⁷ Be	15769.5 5	37600.3 5		861.815 18	10676 5	5605.79 9
⁷ B	27870 70	24720 70		12100 70		-2200 70
⁸ He	31598 7	31408 7	10653 7		2580 30	
⁸ Li	20945.2 6	41278.3 6	16003.6 6		2033.8 3	12450 30
⁸ Be	4941.66 3	56499.51 4			18899.2 5	17255.0 5
⁸ B	22921.0 11	37737.8 11		17979.4 11	13020 70	137.5 10
⁸ C	35094 23	24782 23		12173 23		60 70
⁹ He	40820 60	30260 60	15860 60		-1150 60	
⁹ Li	24954.0 19	45340.9 19	13606.3 19		4062.6 20	13933 7
⁹ Be	11347.7 4	58164.8 4			1665.3 4	16886.5 6
⁹ B	12415.8 10	56314.3 10		1068.1 9	18576.5 14	-185.2 10
⁹ C	28914.0 21	39033.8 21		16498.2 23	14251 23	1296.0 23
¹⁰ Li	33440 50	44920 50	20840 50		-420 50	14660 80
¹⁰ Be	12606.7 4	64977.1 4	555.9 5		6812.33 6	19636.3 19
¹⁰ B	12050.8 3	64750.6 3			8436.3 10	6585.8 5
¹⁰ C	15698.6 3	60320.5 3		3647.81 9	21286.7 21	4006.1 10
¹⁰ N	(39700)	(35500)		(24000)		(-3500)
¹¹ Li	40790 40	45650 40	20610 40		730 70	
¹¹ Be	20174 6	65481 6	11506 6		504 6	20560 50
¹¹ B	8668.0 4	76204.8 4			11454.12 20	11227.6 5
¹¹ C	10650.2 9	73440.3 9		1982.1 8	13119.8 8	8689.6 8
¹¹ N	24960 180	58350 180		14310 180	(22800)	-1970 180
¹² Be	25077 15	68650 15	11708 15		3169 16	23000 50
¹² B	13368.9 14	79575.2 14	13368.9 14		3370.4 14	14094 7
¹² C		92161.758 14			18721.5 9	15957.0 4
¹² N	17338.1 10	74041.3 10		17338.1 10	15690 180	601.0 13
¹² O	32060 40	58530 40		14730 40		190 190
¹³ Be	35160 50	66640 50	18600 50		-2010 50	
¹³ B	16562.3 11	84453.2 11	13437.2 11		4878.0 18	15803 15
¹³ C	3125.011 5	97108.063 17			4946.310 10	17532.9 14
¹³ N	5345.5 3	94105.3 3		2220.4 3	20064.0 10	1943.5 3
¹³ O	23111 10	75558 10		17765 10	17020 50	1516 10
¹⁴ Be	39880 110	69990 110	16220 110		3350 120	
¹⁴ B	23664 21	85423 21	20644 21		970 21	18780 50
¹⁴ C	3019.894 4	105284.508 19	156.475 4		8176.440 10	20831.3 11
¹⁴ N	2863.419 2	104658.625 17			10553.4 3	7550.56
¹⁴ O	8006.46 7	98733.23 8		5143.04 7	23176 10	4628.0 3
¹⁴ F	(33600)	(72300)		(25600)		(-3200)
¹⁵ B	28967 22	88191 22	19094 22		2770 30	18200 110
¹⁵ C	9873.1 8	106502.6 8	9771.6 8		1218.1 8	21080 21
¹⁵ N	101.508 11	115491.859 22			10833.230 10	10207.360 10
¹⁵ O	2855.5 5	111955.6 5		2753.9 5	13222.3 5	7296.9 5
¹⁵ F	16780 130	97250 130		13920 130	(24900)	-1480 130
¹⁵ Ne	(41400)	(71900)		(24600)		(-500)
¹⁶ B	(37100)	(88100)	(23400)		(-100)	

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁶ C	13694 4	110753 4	8012 4		4250 4	22562 23
¹⁶ N	5682.0 23	117982.7 23	10419.0 23		2490.8 23	11480.1 24
¹⁶ O	-4736.998 2	127619.336 19			15663.8 5	12127.480 10
¹⁶ F	10680 8	111420 8		15417 8	14170 130	-536 8
¹⁶ Ne	23989 20	97329 20		13308 22	(25500)	80 140
¹⁷ B	43720 140	89580 140	22680 140		(1500)	
¹⁷ C	21037 17	111482 17	13166 23		729 18	(23400)
¹⁷ N	7871 15	123865 15	8680 15		5883 15	13112 15
¹⁷ O	-809.00 21	131762.66 21			4143.33 21	13780.0 23
¹⁷ F	1951.70 25	128219.61 25		2760.7 3	16800 8	600.27 25
¹⁷ Ne	16490 50	112900 50		14530 50	15570 50	1480 50
¹⁷ Na	(35200)	(93400)		(18700)		(-3900)
¹⁸ B	(52300)	(89100)	(27400)		(-500)	
¹⁸ C	24920 30	115670 30	11810 40		4180 30	26080 140
¹⁸ N	13117 20	126690 20	13899 20		2825 25	15210 30
¹⁸ O	-782.1 8	139807.0 8			8044.4 8	15942 15
¹⁸ F	873.4 6	137369.2 6		1655.5 6	9149.6 6	5606.5 6
¹⁸ Ne	5319 5	132141 5		4446 5	19240 50	3922 5
¹⁸ Na	(25300)	(111400)		(20000)	(17900)	(-1500)
¹⁹ B	(59400)	(90100)	(26500)		(1000)	
¹⁹ C	32830 110	115830 110	16970 110		160 110	(26800)
¹⁹ N	15860 16	132018 16	12528 17		5330 30	16350 30
¹⁹ O	3332 3	143764 3	4820 3		3957 3	17074 20
¹⁹ F	-1487.41 7	147801.36 7			10432.2 6	7994.3 8
¹⁹ Ne	1751.0 6	143780.6 6		3238.4 6	11639 5	6411.5 8
¹⁹ Na	12929 12	131821 12		11178 12	(20500)	-321 13
¹⁹ Mg	(32000)	(112000)		(19000)		(700)
²⁰ C	37560 200	119170 200	15790 210		3340 230	(29100)
²⁰ N	21770 50	134180 50	17970 50		2170 60	18360 120
²⁰ O	3796.9 12	151370.7 12	3814.3 12		7607 3	19353 16
²⁰ F	-17.40 8	154402.67 9	7024.53 8		6601.31 5	10639 3
²⁰ Ne	-7041.929 3	160644.859 24			16864.2 6	12843.49 7
²⁰ Na	6845 7	145976 7		13887 7	14155 14	2195 7
²⁰ Mg	17570 30	134470 30		10730 30	(22500)	2650 30
²¹ C	(46000)	(118800)	(20700)		(-300)	
²¹ N	25230 90	138790 90	17170 90		4610 100	19620 220
²¹ O	8062 12	155177 12	8109 12		3807 12	20990 50
²¹ F	-47.6 18	162504.2 18	5684.1 18		8101.5 18	11133.5 22
²¹ Ne	-5731.72 4	167405.97 5			6761.11 4	13003.29 9
²¹ Na	-2184.3 7	163076.2 7		3547.5 7	17100 7	2431.3 7
²¹ Mg	10912 16	149198 16		13096 16	14730 30	3222 18
²¹ Al	(26100)	(133200)		(15200)		(-1300)
²² C	(52600)	(120300)	(20500)		(1400)	
²² N	32080 200	140010 200	22800 200		1220 220	(21200)
²² O	9280 60	162030 60	6490 60		6850 60	23240 110
²² F	2794 12	167734 12	10818 12		5230 13	12557 17
²² Ne	-8024.35 23	177769.92 24			10363.96 23	15265.7 18
²² Na	-5182.2 4	174145.5 4		2842.1 4	11069.3 8	6739.5 4
²² Mg	-396.8 14	168577.7 14		4785.5 14	19380 16	5501.5 15
²² Al	(18180)	(149220)		(18580)	(16000)	(20)
²² Si	(32160)	(134450)		(13980)		(1200)
²³ N	(37700)	(142400)	(23100)		(2400)	(22100)
²³ O	14620 100	164770 100	11290 130		2740 120	24750 220
²³ F	3330 80	175270 80	8480 80		7540 80	13240 100
²³ Ne	-5153.7 3	182970.5 3	4375.85 20		5200.62 12	15236 12
²³ Na	-9529.50 24	186564.05 25			12418.6 4	8794.12 16
²³ Mg	-5472.7 13	181724.9 13		4056.8 12	13147.2 18	7579.4 13
²³ Al	6767 25	168703 25		12240 25	(19490)	125 25
²³ Si	(23770)	(150920)		(17010)	(16500)	(1700)
²⁴ N	(47000)	(141200)	(28100)		(-1200)	
²⁴ O	19000 300	168500 300	11400 300		3700 300	(26000)
²⁴ F	7540 70	179130 70	13490 70		3860 100	14360 120
²⁴ Ne	-5948 10	191836 10	2470 10		8865 10	16570 80
²⁴ Na	-8417.62 25	193523.5 3	5515.79 16		6959.44 5	10552.94 21
²⁴ Mg	-13933.40 24	198256.91 24			16532.0 12	11692.87 15
²⁴ Al	-55 4	183596 4		13878 4	14894 25	1871 4
²⁴ Si	10755 19	172004 19		10810 20	(21090)	3300 30
²⁴ P	(32000)	(150000)		(21200)		(-900)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²⁵ O	(27100)	(168400)	(15900)		(-100)	(27200)
²⁵ F	11270 <i>80</i>	183480 <i>80</i>	13330 <i>90</i>		4350 <i>100</i>	15000 <i>300</i>
²⁵ Ne	-2060 <i>40</i>	196020 <i>40</i>	7300 <i>40</i>		4180 <i>50</i>	16890 <i>80</i>
²⁵ Na	-9357.5 <i>12</i>	202534.7 <i>12</i>	3835.3 <i>12</i>		9011.2 <i>12</i>	10699 <i>10</i>
²⁵ Mg	-13192.75 <i>24</i>	205587.58 <i>24</i>			7330.67 <i>4</i>	12064.10 <i>16</i>
²⁵ Al	-8915.8 <i>7</i>	200528.2 <i>7</i>		4277.0 <i>7</i>	16932 <i>4</i>	2271.3 <i>7</i>
²⁵ Si	3825 <i>10</i>	187005 <i>10</i>		12741 <i>10</i>	15001 <i>22</i>	3409 <i>11</i>
²⁵ P	(18870)	(171180)		(15050)	(21200)	(-830)
²⁶ O	(35200)	(168400)	(16900)		(100)	
²⁶ F	18290 <i>120</i>	184530 <i>120</i>	17860 <i>140</i>		1050 <i>150</i>	(16100)
²⁶ Ne	430 <i>50</i>	201600 <i>50</i>	7330 <i>60</i>		5580 <i>70</i>	18130 <i>90</i>
²⁶ Na	-6902 <i>14</i>	208151 <i>14</i>	9312 <i>14</i>		5616 <i>14</i>	12130 <i>50</i>
²⁶ Mg	-16214.51 <i>25</i>	216680.67 <i>25</i>			11093.09 <i>4</i>	14146.0 <i>12</i>
²⁶ Al	-12210.32 <i>25</i>	211894.1 <i>3</i>		4004.19 <i>6</i>	11365.9 <i>7</i>	6306.55 <i>6</i>
²⁶ Si	-7145 <i>3</i>	206046 <i>3</i>		5066 <i>3</i>	19041 <i>10</i>	5518 <i>3</i>
²⁶ P	(10970)	(187150)		(18120)	(16000)	(140)
²⁶ S	(26000)	(171400)		(15000)		(200)
²⁷ F	25100 <i>400</i>	185800 <i>400</i>	18000 <i>400</i>		1300 <i>400</i>	(17400)
²⁷ Ne	7090 <i>90</i>	203010 <i>90</i>	12670 <i>100</i>		1410 <i>110</i>	18480 <i>150</i>
²⁷ Na	-5580 <i>40</i>	214900 <i>40</i>	9010 <i>40</i>		6750 <i>40</i>	13300 <i>70</i>
²⁷ Mg	-14586.54 <i>25</i>	223124.0 <i>3</i>	2610.32 <i>17</i>		6443.35 <i>4</i>	14973 <i>14</i>
²⁷ Al	-17196.86 <i>22</i>	224951.98 <i>22</i>			13057.86 <i>17</i>	8271.32 <i>17</i>
²⁷ Si	-12385.03 <i>25</i>	219357.80 <i>25</i>		4811.83 <i>10</i>	13312 <i>3</i>	7463.67 <i>20</i>
²⁷ P	-750 <i>40</i>	206940 <i>40</i>		11630 <i>40</i>	(19800)	900 <i>40</i>
²⁷ S	(17510)	(187900)		(18260)	(16500)	(800)
²⁸ F	(33200)	(185700)	(21900)		(-100)	
²⁸ Ne	11280 <i>110</i>	206890 <i>110</i>	12310 <i>140</i>		3890 <i>140</i>	21100 <i>400</i>
²⁸ Na	-1030 <i>80</i>	218420 <i>80</i>	13990 <i>80</i>		3520 <i>80</i>	15420 <i>120</i>
²⁸ Mg	-15018.8 <i>20</i>	231627.6 <i>20</i>	1831.8 <i>20</i>		8503.6 <i>20</i>	16730 <i>40</i>
²⁸ Al	-16850.58 <i>23</i>	232677.03 <i>23</i>	4642.25 <i>14</i>		7725.05 <i>6</i>	9553.01 <i>18</i>
²⁸ Si	-21492.83 <i>20</i>	236536.92 <i>20</i>			17179.13 <i>16</i>	11584.94 <i>13</i>
²⁸ P	-7161 <i>4</i>	221423 <i>4</i>		14332 <i>4</i>	14480 <i>40</i>	2065 <i>4</i>
²⁸ S	4070 <i>160</i>	209410 <i>160</i>		11230 <i>160</i>	(21500)	2460 <i>160</i>
²⁸ Cl	(26600)	(186100)		(22500)		(-1800)
²⁹ F	(40300)	(186700)	(22300)		(1000)	
²⁹ Ne	18000 <i>300</i>	208200 <i>300</i>	15400 <i>300</i>		1300 <i>300</i>	(22500)
²⁹ Na	2620 <i>90</i>	222840 <i>90</i>	13280 <i>90</i>		4420 <i>120</i>	15950 <i>140</i>
²⁹ Mg	-10660 <i>30</i>	235340 <i>30</i>	7550 <i>30</i>		3710 <i>30</i>	16920 <i>80</i>
²⁹ Al	-18215.5 <i>12</i>	242113.3 <i>12</i>	3679.5 <i>12</i>		9436.3 <i>12</i>	10485.7 <i>23</i>
²⁹ Si	-21895.06 <i>20</i>	245010.47 <i>21</i>			8473.56 <i>3</i>	12333.45 <i>14</i>
²⁹ P	-16951.9 <i>8</i>	239285.0 <i>8</i>		4943.1 <i>7</i>	17862 <i>4</i>	2748.1 <i>7</i>
²⁹ S	-3160 <i>50</i>	224710 <i>50</i>		13790 <i>50</i>	15300 <i>170</i>	3290 <i>50</i>
²⁹ Cl	(13140)	(207630)		(16300)	(21500)	(-1780)
³⁰ Ne	22200 <i>800</i>	212100 <i>800</i>	13600 <i>800</i>		3900 <i>900</i>	(25300)
³⁰ Na	8590 <i>90</i>	224940 <i>90</i>	17480 <i>110</i>		2100 <i>130</i>	16700 <i>300</i>
³⁰ Mg	-8880 <i>70</i>	241630 <i>70</i>	6990 <i>70</i>		6290 <i>70</i>	18790 <i>110</i>
³⁰ Al	-15872 <i>14</i>	247842 <i>14</i>	8561 <i>14</i>		5728 <i>14</i>	12500 <i>30</i>
³⁰ Si	-24432.92 <i>21</i>	255619.66 <i>21</i>			10609.18 <i>3</i>	13506.3 <i>12</i>
³⁰ P	-20200.6 <i>4</i>	250605.0 <i>4</i>		4232.3 <i>4</i>	11320.0 <i>8</i>	5594.5 <i>4</i>
³⁰ S	-14063 <i>3</i>	243685 <i>3</i>		6138 <i>3</i>	18980 <i>50</i>	4400 <i>3</i>
³⁰ Cl	(4440)	(224400)		(18510)	(16800)	(-310)
³⁰ Ar	(20100)	(208000)		(15600)		(300)
³¹ Ne	(30800)	(211500)	(18200)		(-500)	
³¹ Na	12660 <i>160</i>	228940 <i>160</i>	15880 <i>180</i>		4000 <i>190</i>	16900 <i>800</i>
³¹ Mg	-3220 <i>80</i>	244040 <i>80</i>	11740 <i>80</i>		2400 <i>100</i>	19100 <i>120</i>
³¹ Al	-14954 <i>20</i>	254995 <i>20</i>	7995 <i>20</i>		7153 <i>25</i>	13360 <i>70</i>
³¹ Si	-22948.99 <i>21</i>	262207.06 <i>22</i>	1492.02 <i>20</i>		6587.40 <i>5</i>	14366 <i>14</i>
³¹ P	-24441.0 <i>3</i>	262916.7 <i>3</i>			12311.7 <i>4</i>	7297.07 <i>19</i>
³¹ S	-19044.9 <i>15</i>	256738.3 <i>15</i>		5396.1 <i>15</i>	13053 <i>3</i>	6133.3 <i>16</i>
³¹ Cl	-7060 <i>50</i>	243980 <i>50</i>		11980 <i>50</i>	(19580)	290 <i>50</i>
³¹ Ar	(11300)	(224830)		(18360)	(16900)	(400)
³² Ne	(37200)	(213300)	(18900)		(1700)	
³² Na	18300 <i>500</i>	231400 <i>500</i>	19100 <i>500</i>		2400 <i>500</i>	(19800)
³² Mg	-800 <i>100</i>	249690 <i>100</i>	10270 <i>130</i>		5650 <i>120</i>	20750 <i>190</i>
³² Al	-11060 <i>90</i>	259170 <i>90</i>	13020 <i>90</i>		4180 <i>90</i>	15140 <i>120</i>
³² Si	-24080.9 <i>22</i>	271410.3 <i>22</i>	224.4 <i>22</i>		9203.2 <i>22</i>	16416 <i>20</i>
³² P	-24305.3 <i>3</i>	270852.4 <i>3</i>	1710.6 <i>3</i>		7935.65 <i>4</i>	8645.32 <i>20</i>
³² S	-26015.94 <i>14</i>	271780.63 <i>14</i>			15042.4 <i>15</i>	8863.9 <i>3</i>
³² Cl	-13331 <i>7</i>	258313 <i>7</i>		12685 <i>7</i>	14340 <i>50</i>	1575 <i>7</i>

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
³² Ar	-2180.50	246380.50		11150.50	(21550)	2400.70
³² K	(20400)	(223000)		(22600)		(-1800)
³³ Na	25500.1500	232200.1500	20300.1500		900.1600	(19000)
³³ Mg	5200.150	251760.150	13710.160		2070.170	20400.500
³³ Al	-8500.70	264690.70	11990.70		5510.110	15000.120
³³ Si	-20492.16	275893.16	5845.16		4483.16	16720.90
³³ P	-26337.7.11	280956.0.11	248.5.11		10103.7.11	9545.8.24
³³ S	-26586.20.13	280422.19.14			8641.58.3	9569.8.3
³³ Cl	-21003.5.5	274057.1.5		5582.7.5	15744.7	2276.5.5
³³ Ar	-9380.30	261650.30		11620.30	15270.60	3340.30
³³ K	(6760)	(244730)		(16140)	(21700)	(-1650)
³⁴ Na	(32500)	(233300)	(24100)		(1100)	
³⁴ Mg	8500.300	256600.300	11300.300		4800.300	24300.1500
³⁴ Al	-2860.90	267120.90	17090.90		2430.110	15360.170
³⁴ Si	-19957.14	283429.14	4601.15		7536.21	18740.70
³⁴ P	-24558.5	287247.5	5374.5		6291.5	11354.17
³⁴ S	-29931.81.13	291839.13.13			11416.94.5	10883.1.11
³⁴ Cl	-24439.61.20	285564.59.21		5492.20.16	11507.5.5	5142.38.15
³⁴ Ar	-18378.3	278721.3		6061.3	17070.30	4664.3
³⁴ K	(-1500)	(261000)		(16900)	(16300)	(-600)
³⁴ Ca	(13200)	(245600)		(14600)		(900)
³⁵ Na	(41200)	(232700)	(24900)		(-600)	
³⁵ Mg	(16300)	(256800)	(16400)		(200)	(23500)
³⁵ Al	-60.140	272380.140	14300.150		5270.170	15800.300
³⁵ Si	-14360.40	285900.40	10500.40		2470.40	18790.100
³⁵ P	-24857.6.19	295618.6.19	3988.7.19		8371.5	12190.14
³⁵ S	-28846.33.12	298824.97.13	167.18.12		6985.84.4	11578.5
³⁵ Cl	-29013.51.4	298209.81.6			12645.23.20	6370.67.12
³⁵ Ar	-23048.2.8	291462.2.8		5965.3.8	12741.3	5897.6.8
³⁵ K	-11167.20	278799.20		11881.20	(17800)	78.20
³⁵ Ca	(4440)	(262410)		(15610)	(16800)	(1400)
³⁶ Mg	(20900)	(260300)	(15000)		(3500)	(27500)
³⁶ Al	5900.300	274500.300	18300.300		2100.300	(17700)
³⁶ Si	-12400.100	292020.100	7850.100		6110.110	19630.170
³⁶ P	-20251.13	299083.13	10413.13		3465.13	13180.40
³⁶ S	-30663.96.23	308713.94.24			9889.0.3	13095.3.19
³⁶ Cl	-29521.89.8	306789.50.9	708.6.3	1142.07.25	8579.70.7	7964.53.13
³⁶ Ar	-30230.5.3	306715.7.3			15253.6.8	8505.92.25
³⁶ K	-17425.8	293128.8		12805.8	14329.21	1666.8
³⁶ Ca	-6440.40	281360.40		10990.40	(18950)	2560.40
³⁶ Sc	(13900)	(260200)		(20300)		(-2200)
³⁷ Al	9600.500	278900.500	16100.600		4400.600	(18600)
³⁷ Si	-6520.130	294210.130	12470.130		2190.160	19700.300
³⁷ P	-18990.40	305900.40	7900.40		6820.40	13880.110
³⁷ S	-26896.2.3	313017.5.3	4865.30.25		4303.58.9	13934.13
³⁷ Cl	-31761.52.5	317100.47.7			10310.96.9	8386.53.23
³⁷ Ar	-30948.0.3	315504.6.3		813.5.3	8788.9.4	8715.1.3
³⁷ K	-24799.3.3	308573.5.3		6148.8.4	15445.8	1857.77.9
³⁷ Ca	-13161.22	296152.22		11639.22	14790.50	3024.24
³⁷ Sc	(2800)	(279400)		(16000)	(19100)	(-2000)
³⁸ Al	(15700)	(280800)	(19500)		(1900)	
³⁸ Si	-3700.300	299500.300	10700.300		5300.300	20600.600
³⁸ P	-14470.140	309440.140	12390.140		3540.140	15230.190
³⁸ S	-26861.7	321054.7	2937.7		8036.7	15160.40
³⁸ Cl	-29797.98.11	323208.25.12	4916.8.5		6107.78.10	10190.7.3
³⁸ Ar	-34714.8.5	327342.7.5			11838.0.6	10242.2.5
³⁸ K	-28801.7.7	320647.3.7		5913.1.6	12073.8.8	5142.6.8
³⁸ Ca	-22059.5	313122.5		6743.5	16970.23	4549.5
³⁸ Sc	(-4900)	(295200)		(17100)	(15800)	(-900)
³⁸ Ti	(9100)	(280400)		(14000)		(1000)
³⁹ Si	(2100)	(301700)	(14800)		(2200)	(20900)
³⁹ P	-12650.150	315700.150	10510.160		6250.200	16200.300
³⁹ S	-23160.50	325430.50	6640.50		4370.50	15980.150
³⁹ Cl	-29799.8.18	331281.4.18	3442.5		8073.1.18	10228.7
³⁹ Ar	-33242.5	333941.5	565.5		6598.5	10733.5
³⁹ K	-33806.8.3	333723.7.3			13076.5.7	6381.0.4
³⁹ Ca	-27276.3.18	326410.8.18		6530.6.18	13289.5	5763.5.19
³⁹ Sc	-14168.24	312520.24		13108.24	(17300)	-602.24
³⁹ Ti	(1230)	(296340)		(15400)	(15900)	(1100)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁴⁰ Si	(5400)	(306500)	(13700)		(4800)	
⁴⁰ P	-8340 200	319450 200	14500 300		3760 250	(17800)
⁴⁰ S	-22850 230	333180 230	4710 240		7760 240	17500 300
⁴⁰ Cl	-27560 30	337110 30	7480 30		5830 30	11690 60
⁴⁰ Ar	-35039.891 5	343810.44 5			9869 5	12529.1 18
⁴⁰ K	-33535.0 3	341523.2 3	1311.09 12	1504.9 3	7799.50 8	7582 5
⁴⁰ Ca	-34846.1 3	342052.0 3			15641.2 18	8328.24 9
⁴⁰ Sc	-20526 4	326950 4		14320 4	14430 24	539 4
⁴⁰ Ti	-8850 160	314490 160		11680 160	(18150)	1970 160
⁴⁰ V	(10300)	(294500)		(19200)		(-1800)
⁴¹ Si	(11800)	(308100)	(16700)		(1600)	
⁴¹ P	-4800 500	324000 500	13800 500		4600 500	(17500)
⁴¹ S	-18600 210	337010 210	8740 220		3800 300	17600 300
⁴¹ Cl	-27340 60	344960 60	5730 60		7850 70	11780 240
⁴¹ Ar	-33067.3 7	349909.1 7	2491.6 7		6098.7 6	12800 30
⁴¹ K	-35558.9 3	351618.4 3			10095.18 10	7808.0 3
⁴¹ Ca	-35137.5 4	350414.7 4		421.4 3	8362.7 3	8891.4 3
⁴¹ Sc	-28642.2 3	343137.0 3		6495.3 3	16187 4	1085.07 9
⁴¹ Ti	(-15710)	(329430)		(12930)	(14930)	(2480)
⁴¹ V	(-240)	(313170)		(15470)	(18600)	(-1300)
⁴² P	(100)	(327200)	(17300)		(3100)	(19000)
⁴² S	-17200 300	343700 300	7700 300		6700 400	19700 600
⁴² Cl	-24990 110	350680 110	9430 120		5720 130	13670 240
⁴² Ar	-34420 40	359340 40	600 40		9430 40	14370 80
⁴² K	-35021.3 3	359152.2 3	3525.4 3		7533.77 15	9243.0 7
⁴² Ca	-38546.8 4	361895.3 4			11480.60 6	10276.9 3
⁴² Sc	-32120.9 4	354687.1 4		6425.85 13	11550.0 3	4272.40 12
⁴² Ti	-25121 5	346905 5		7000 5	(17480)	3768 5
⁴² V	(-8170)	(329170)		(16950)	(16000)	(-260)
⁴² Cr	(6000)	(314200)		(14200)		(1100)
⁴³ P	(3100)	(332200)	(15600)		(5100)	
⁴³ S	-12500 800	347000 800	11500 900		3300 900	(19900)
⁴³ Cl	-24030 160	357800 160	7950 180		7110 200	14100 400
⁴³ Ar	-31980 70	364960 70	4620 70		5630 80	14280 130
⁴³ K	-36593 9	368795 9	1815 9		9643 9	9460 40
⁴³ Ca	-38408.4 5	369828.3 5			7933.0 3	10676.1 4
⁴³ Sc	-36187.6 19	366825.1 19		2220.8 19	12138.0 19	4929.8 19
⁴³ Ti	-29320 7	359175 7		6867 7	12271 9	4488 7
⁴³ V	(-18020)	(347100)		(11300)	(17900)	(190)
⁴³ Cr	(-2140)	(330430)		(15890)	(16200)	(1260)
⁴⁴ S	(-10900)	(353500)	(9100)		(6500)	(21300)
⁴⁴ Cl	-19990 220	361830 220	12270 220		4000 300	14800 900
⁴⁴ Ar	-32262 20	373318 20	3550 40		8360 70	15520 160
⁴⁴ K	-35810 40	376080 40	5660 40		7290 40	11120 80
⁴⁴ Ca	-41469.1 9	380960.3 9			11132.0 7	12165 9
⁴⁴ Sc	-37815.8 18	376524.6 18		3653.3 19	9700 3	6696.3 17
⁴⁴ Ti	-37548.3 8	375474.7 8		267.5 19	16299 7	8649.6 20
⁴⁴ V	(-23850)	(360990)		(13700)	(13890)	(1820)
⁴⁴ Cr	(-13540)	(349900)		(10310)	(19470)	(2800)
⁴⁴ Mn	(6400)	(329200)		(19900)		(-1200)
⁴⁵ S	(-4800)	(355500)	(14100)		(2000)	
⁴⁵ Cl	-18900 700	368800 700	10800 700		7000 700	(15300)
⁴⁵ Ar	-29720 60	378850 60	6890 60		5530 60	17020 230
⁴⁵ K	-36608 10	384953 10	4204 10		8870 40	11635 23
⁴⁵ Ca	-40812.5 9	388375.0 9	256.8 9		7414.8 3	12290 40
⁴⁵ Sc	-41069.4 11	387849.5 11			11324.9 20	6889.2 9
⁴⁵ Ti	-39006.9 12	385004.7 12		2062.4 5	9530.0 14	8480.1 21
⁴⁵ V	-31874 17	377089 17		7133 17	(16100)	1614 17
⁴⁵ Cr	(-19410)	(363850)		(12460)	(13950)	(2860)
⁴⁵ Mn	(-5100)	(348800)		(14300)	(19600)	(-1100)
⁴⁵ Fe	(13600)	(329300)		(18700)		(100)
⁴⁶ Cl	(-14800)	(372800)	(14900)		(4000)	(17300)
⁴⁶ Ar	-29720 40	386920 40	5700 40		8070 70	18100 700
⁴⁶ K	-35419 16	391835 16	7716 16		6882 18	12990 60
⁴⁶ Ca	-43135.0 24	398768.8 24			10393.7 24	13816 10
⁴⁶ Sc	-41758.7 11	396610.1 11	2366.7 7	1376.3 24	8760.62 11	8235.1 9
⁴⁶ Ti	-44125.4 11	398194.4 11			13189.8 8	10345.0 7
⁴⁶ V	-37074.0 15	390360.7 15		7051.4 10	13272 17	5356.0 13
⁴⁶ Cr	-29471 20	381975 20		7603 20	(18130)	4890 30

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁴⁶ Mn	(-12370)	(364090)		(17100)	(15300)	(250)
⁴⁶ Fe	(800)	(350200)		(13100)	(20900)	(1400)
⁴⁷ Cl	(-11200)	(377300)	(14700)		(4500)	
⁴⁷ Ar	-25910 <i>100</i>	391180 <i>100</i>	9790 <i>100</i>		4260 <i>110</i>	(18400)
⁴⁷ K	-35697 <i>8</i>	400184 <i>8</i>	6643 <i>8</i>		8349 <i>16</i>	13270 <i>40</i>
⁴⁷ Ca	-42339.7 <i>23</i>	406044.8 <i>23</i>	1991.9 <i>12</i>		7276.1 <i>5</i>	14210 <i>16</i>
⁴⁷ Sc	-44331.7 <i>21</i>	407254.4 <i>21</i>	600.1 <i>19</i>		10644.3 <i>21</i>	8485.7 <i>13</i>
⁴⁷ Ti	-44931.8 <i>10</i>	407072.2 <i>10</i>			8877.7 <i>10</i>	10462.1 <i>11</i>
⁴⁷ V	-42004.0 <i>11</i>	403362.0 <i>11</i>		2927.8 <i>10</i>	13001.3 <i>10</i>	5167.56 <i>7</i>
⁴⁷ Cr	-34552 <i>14</i>	395128 <i>14</i>		7451 <i>14</i>	13153 <i>24</i>	4767 <i>14</i>
⁴⁷ Mn	(-22260)	(382060)		(12290)	(17960)	(80)
⁴⁷ Fe	(-6600)	(365600)		(15600)	(15400)	(1500)
⁴⁸ Ar	(-23200)	(396600)	(8900)		(5400)	(19300)
⁴⁸ K	-32125 <i>24</i>	404683 <i>24</i>	12090 <i>24</i>		4499 <i>25</i>	13510 <i>100</i>
⁴⁸ Ca	-44215 <i>4</i>	415991 <i>4</i>	278 <i>5</i>		9946 <i>4</i>	15807 <i>7</i>
⁴⁸ Sc	-44493 <i>5</i>	415487 <i>5</i>	3994 <i>5</i>		8233 <i>5</i>	9442 <i>5</i>
⁴⁸ Ti	-48487.1 <i>10</i>	418698.8 <i>10</i>			11626.59 <i>4</i>	11444.3 <i>19</i>
⁴⁸ V	-44475 <i>3</i>	413904 <i>3</i>		4012.3 <i>24</i>	10542 <i>3</i>	6831.9 <i>24</i>
⁴⁸ Cr	-42815 <i>7</i>	411462 <i>7</i>		1659 <i>8</i>	16334 <i>16</i>	8100 <i>7</i>
⁴⁸ Mn	(-29290)	(397150)		(13530)	(15100)	(2020)
⁴⁸ Fe	(-18110)	(385190)		(11180)	(19600)	(3140)
⁴⁸ Co	(1800)	(364500)		(19900)		(-1100)
⁴⁹ K	-30320 <i>70</i>	410950 <i>70</i>	10970 <i>70</i>		6270 <i>70</i>	(14400)
⁴⁹ Ca	-41290 <i>4</i>	421138 <i>4</i>	5262 <i>3</i>		5146.6 <i>4</i>	16455 <i>24</i>
⁴⁹ Sc	-46552 <i>4</i>	425618 <i>4</i>	2006 <i>4</i>		10131 <i>6</i>	9626 <i>3</i>
⁴⁹ Ti	-48558.1 <i>10</i>	426841.1 <i>10</i>			8142.36 <i>5</i>	11354 <i>5</i>
⁴⁹ V	-47956.2 <i>13</i>	425456.9 <i>13</i>		601.9 <i>8</i>	11553 <i>3</i>	6758.1 <i>8</i>
⁴⁹ Cr	-45326 <i>3</i>	422044 <i>3</i>		2631 <i>3</i>	10581 <i>8</i>	8140 <i>3</i>
⁴⁹ Mn	-37611 <i>24</i>	413547 <i>24</i>		7715 <i>24</i>	(16400)	2084 <i>25</i>
⁴⁹ Fe	(-24580)	(399740)		(13030)	(14550)	(2590)
⁴⁹ Co	(-9900)	(384300)		(14700)	(19800)	(-900)
⁵⁰ K	-25400 <i>300</i>	414100 <i>300</i>	14200 <i>300</i>		3100 <i>300</i>	
⁵⁰ Ca	-39572 <i>9</i>	427491 <i>9</i>	4966 <i>17</i>		6353 <i>8</i>	16540 <i>70</i>
⁵⁰ Sc	-44538 <i>16</i>	431674 <i>16</i>	6888 <i>16</i>		6057 <i>15</i>	10536 <i>15</i>
⁵⁰ Ti	-51425.9 <i>10</i>	437780.3 <i>10</i>			10939.13 <i>4</i>	12163 <i>4</i>
⁵⁰ V	-49217.7 <i>13</i>	434789.7 <i>13</i>	1036.9 <i>4</i>	2208.2 <i>11</i>	9332.8 <i>14</i>	7948.5 <i>11</i>
⁵⁰ Cr	-50254.6 <i>13</i>	435044.3 <i>13</i>			13000.3 <i>22</i>	9587.3 <i>14</i>
⁵⁰ Mn	-42621.6 <i>14</i>	426628.9 <i>14</i>		7633.0 <i>3</i>	13082 <i>24</i>	4585.0 <i>22</i>
⁵⁰ Fe	-34470 <i>60</i>	417700 <i>60</i>		8150 <i>60</i>	(17960)	4150 <i>60</i>
⁵⁰ Co	(-17500)	(399950)		(16970)	(15700)	(210)
⁵⁰ Ni	(-3800)	(385500)		(13700)		(1200)
⁵¹ Ca	-35900 <i>90</i>	431900 <i>90</i>	7310 <i>90</i>		4400 <i>90</i>	17800 <i>300</i>
⁵¹ Sc	-43219 <i>20</i>	438427 <i>20</i>	6508 <i>20</i>		6753 <i>25</i>	10936 <i>22</i>
⁵¹ Ti	-49726.9 <i>13</i>	444152.6 <i>13</i>	2470.7 <i>15</i>		6372.3 <i>9</i>	12478 <i>16</i>
⁵¹ V	-52197.6 <i>13</i>	445840.9 <i>13</i>			11051.28 <i>9</i>	8060.7 <i>11</i>
⁵¹ Cr	-51444.9 <i>13</i>	444305.9 <i>13</i>		752.73 <i>24</i>	9261.6 <i>3</i>	9516.20 <i>25</i>
⁵¹ Mn	-48237.1 <i>13</i>	440315.7 <i>13</i>		3207.8 <i>5</i>	13686.8 <i>5</i>	5271.5 <i>4</i>
⁵¹ Fe	-40217 <i>15</i>	431514 <i>15</i>		8020 <i>15</i>	13820 <i>60</i>	4885 <i>15</i>
⁵¹ Co	(-27470)	(417980)		(12750)	(18040)	(290)
⁵¹ Ni	(-11400)	(401200)		(16000)	(15700)	(1200)
⁵² Ca	-32500 <i>500</i>	436600 <i>500</i>	7900 <i>500</i>		4700 <i>500</i>	
⁵² Sc	-40460 <i>160</i>	443740 <i>160</i>	9010 <i>160</i>		5310 <i>160</i>	11840 <i>180</i>
⁵² Ti	-49464 <i>7</i>	451961 <i>7</i>	1973 <i>7</i>		7808 <i>7</i>	13534 <i>22</i>
⁵² V	-51437.5 <i>13</i>	453152.2 <i>13</i>	3975.6 <i>12</i>		7311.24 <i>23</i>	8999.6 <i>15</i>
⁵² Cr	-55413.1 <i>14</i>	456345.4 <i>14</i>			12039.6 <i>11</i>	10504.5 <i>11</i>
⁵² Mn	-50701.3 <i>24</i>	450851.2 <i>24</i>		4711.9 <i>20</i>	10535.5 <i>22</i>	6545.4 <i>22</i>
⁵² Fe	-48329 <i>10</i>	447697 <i>10</i>		2372 <i>10</i>	16183 <i>18</i>	7381 <i>10</i>
⁵² Co	(-34320)	(432900)		(14010)	(14920)	(1390)
⁵² Ni	(-22650)	(420460)		(11660)	(19300)	(2470)
⁵² Cu	(-2600)	(399600)		(20000)		(-1500)
⁵³ Ca	(-27900)	(440000)	(10100)		(3500)	
⁵³ Sc	(-38000)	(449300)	(8900)		(5600)	(12700)
⁵³ Ti	-46820 <i>100</i>	457390 <i>100</i>	5020 <i>100</i>		5430 <i>100</i>	13660 <i>190</i>
⁵³ V	-51845 <i>3</i>	461631 <i>3</i>	3436 <i>3</i>		8479 <i>3</i>	9670 <i>8</i>
⁵³ Cr	-55281.0 <i>14</i>	464284.6 <i>14</i>			7939.17 <i>16</i>	11132.4 <i>12</i>
⁵³ Mn	-54684.0 <i>15</i>	462905.3 <i>15</i>		597.0 <i>4</i>	12054.0 <i>21</i>	6559.8 <i>4</i>
⁵³ Fe	-50941.4 <i>21</i>	458380.3 <i>21</i>		3742.6 <i>18</i>	10683 <i>10</i>	7529 <i>3</i>
⁵³ Co	-42639 <i>18</i>	449296 <i>18</i>		8302 <i>18</i>	(16390)	1599 <i>21</i>
⁵³ Ni	(-29380)	(435250)		(13260)	(14800)	(2350)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁵³ Cu	(-13500)	(418600)		(15900)	(18900)	(-1900)
⁵⁴ Sc	-34000 300	453400 300	11600 400		(4100)	(13400)
⁵⁴ Ti	-45610 160	464250 160	4280 160		6850 190	(14900)
⁵⁴ V	-49887 15	467744 15	7042 15		6113 15	10350 100
⁵⁴ Cr	-56928.7 14	474003.6 14			9719.01 25	12373 3
⁵⁴ Mn	-55551.6 17	471844.2 17	696.9 12	1377.1 10	8939.0 11	7559.6 10
⁵⁴ Fe	-56248.5 13	471758.8 13			13378.5 16	8853.6 7
⁵⁴ Co	-48005.5 13	462733.3 13		8243.09 22	13437 18	4353.0 16
⁵⁴ Ni	-39210 50	453150 50		8800 50	(17900)	3860 50
⁵⁴ Cu	(-21690)	(434860)		(17510)	(16300)	(-400)
⁵⁴ Zn	(-6600)	(418900)		(15100)		(400)
⁵⁵ Sc	(-30300)	(457800)	(11400)		(4400)	
⁵⁵ Ti	-41710 180	468420 180	7440 200		4170 240	15000 400
⁵⁵ V	-49150 100	475080 100	5960 100		7330 100	10830 190
⁵⁵ Cr	-55103.6 15	480249.9 15	2603.1 5		6246.3 4	12506 15
⁵⁵ Mn	-57706.7 14	482070.7 14			10226.4 11	8067.0 4
⁵⁵ Fe	-57475.1 13	481056.7 14		231.6 3	9297.9 3	9212.5 11
⁵⁵ Co	-54023.9 14	476823.1 14		3451.3 4	14089.7 4	5064.3 3
⁵⁵ Ni	-45330 11	467347 11		8694 11	14200 50	4614 11
⁵⁵ Cu	(-32120)	(453350)		(13210)	(18500)	(200)
⁵⁵ Zn	(-14920)	(435380)		(17200)	(16400)	(500)
⁵⁶ Ti	-39100 300	473900 300	7000 300		5500 300	(16100)
⁵⁶ V	-46160 170	480160 170	9130 170		5080 200	11740 240
⁵⁶ Cr	-55289 10	488507 10	1617 9		8257 9	13430 100
⁵⁶ Mn	-56905.9 14	489341.1 14	3695.4 3		7270.5 3	9091.2 6
⁵⁶ Fe	-60601.3 14	492254.2 14			11197.5 4	10183.58 17
⁵⁶ Co	-56035.3 24	486905.9 24		4566.0 20	10082.8 21	5849.2 20
⁵⁶ Ni	-53900 11	483988 11		2136 11	16641 16	7165 11
⁵⁶ Cu	(-38600)	(467910)		(15300)	(14560)	(560)
⁵⁶ Zn	(-25700)	(454300)		(12900)	(18900)	(900)
⁵⁶ Ga	(-4700)	(432500)		(21000)		(-2900)
⁵⁷ Ti	(-34000)	(476900)	(10200)		(3000)	
⁵⁷ V	-44280 210	486350 210	8120 230		6200 300	12400 300
⁵⁷ Cr	-52390 90	493680 90	5090 90		5180 90	13520 190
⁵⁷ Mn	-57485 3	497992 3	2691 3		8651 3	9485 10
⁵⁷ Fe	-60176.0 14	499900.3 14			7646.03 10	10559.1 4
⁵⁷ Co	-59340.0 14	498281.8 14		836.1 4	11376.0 20	6027.6 4
⁵⁷ Ni	-56076 3	494235 3		3264 3	10247 11	7329 3
⁵⁷ Cu	-47306 16	484683 16		8770 16	(16780)	695 19
⁵⁷ Zn	(-32690)	(469280)		(14620)	(15000)	(1370)
⁵⁷ Ga	(-16400)	(452200)		(16300)	(19700)	(-2000)
⁵⁸ V	-40320 180	490460 180	11580 240		4100 300	(13600)
⁵⁸ Cr	-51890 160	501250 160	4010 160		7570 180	14900 300
⁵⁸ Mn	-55900 30	504480 30	6250 30		6490 30	10800 90
⁵⁸ Fe	-62149.2 14	509944.7 14			10044.5 3	11953 3
⁵⁸ Co	-59841.7 17	506854.9 17	381.5 12	2307.4 11	8573.1 11	6954.6 11
⁵⁸ Ni	-60223.3 14	506454.1 14			12219 3	8172.3 6
⁵⁸ Cu	-51660 3	497109 3		8563.0 21	12426 16	2873 3
⁵⁸ Zn	-42290 50	486960 50		9370 50	(17680)	2280 50
⁵⁸ Ga	(-23990)	(467870)		(18310)	(15600)	(-1400)
⁵⁸ Ge	(-8400)	(451500)		(15600)		(-800)
⁵⁹ V	-37900 300	496100 300	9900 400		5700 400	
⁵⁹ Cr	-47770 170	505200 170	7700 170		3950 230	14750 250
⁵⁹ Mn	-55470 30	512120 30	5190 30		7640 40	10870 160
⁵⁹ Fe	-60658.8 14	516525.6 14	1565.1 6		6580.90 20	12050 30
⁵⁹ Co	-62223.9 14	517308.4 14			10453.5 11	7363.7 6
⁵⁹ Ni	-61151.4 14	515453.5 14		1072.5 6	8999.44 14	8598.6 11
⁵⁹ Cu	-56351.8 17	509871.6 17		4799.6 9	12762.9 23	3417.5 9
⁵⁹ Zn	-47260 40	500000 40		9090 40	13040 60	2890 40
⁵⁹ Ga	(-34120)	(486080)		(13140)	(18200)	(-880)
⁵⁹ Ge	(-17000)	(468200)		(17100)	(16700)	(300)
⁶⁰ V	-33100 600	499400 600	13800 600		3200 600	
⁶⁰ Cr	-46800 300	512300 300	5900 300		7100 300	16200 400
⁶⁰ Mn	-52770 190	517500 190	8630 190		5370 190	12290 250
⁶⁰ Fe	-61407 4	525345 4	237 3		8820 3	13220 30
⁶⁰ Co	-61644.5 14	524800.4 14	2823.9 5		7491.93 8	8274.7 6
⁶⁰ Ni	-64468.4 14	526841.9 14			11388.3 5	9533.4 5
⁶⁰ Cu	-58341 3	519933 3		6126.9 21	10061.0 23	4479.1 21
⁶⁰ Zn	-54183 11	514992 11		4158 11	15000 40	5121 11

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁶⁰ Ga	(-40000)	(500030)		(14190)	(13950)	(30)
⁶⁰ Ge	(-27770)	(487010)		(12200)	(18800)	(900)
⁶⁰ As	(-6400)	(464900)		(21400)		(-3300)
⁶¹ Cr	-42800 300	516300 300	8800 300		4000 400	17000 600
⁶¹ Mn	-51570 190	524360 190	7350 190		6900 300	12000 300
⁶¹ Fe	-58918 20	530927 20	3978 20		5582 20	13430 190
⁶¹ Co	-62895.4 16	534122.5 16	1321.7 9		9322.2 9	8777 4
⁶¹ Ni	-64217.1 14	534661.9 14			7820.04 10	9861.5 5
⁶¹ Cu	-61980.0 18	531642.4 18		2237.1 12	11709.8 24	4800.6 12
⁶¹ Zn	-56343 16	525223 16		5637 16	10231 19	5290 16
⁶¹ Ga	(-47350)	(515450)		(9000)	(15420)	(450)
⁶¹ Ge	(-33700)	(501000)		(13600)	(14000)	(1000)
⁶¹ As	(-18100)	(484600)		(15700)	(19700)	(-2400)
⁶² Cr	-41200 400	522800 400	7300 500		6500 500	
⁶² Mn	-48500 300	529300 300	10400 300		5000 300	13000 400
⁶² Fe	-58898 15	538979 15	2530 25		8052 25	14620 190
⁶² Co	-61428 20	540727 20	5315 20		6604 20	9800 30
⁶² Ni	-66743.0 14	545259.1 14			10597.2 4	11136.6 7
⁶² Cu	-62795 4	540529 4		3948 4	8886 4	5867 4
⁶² Zn	-61168 10	538119 10		1627 11	12896 19	6477 10
⁶² Ga	-52000 30	528170 30		9170 30	(12720)	2940 30
⁶² Ge	(-42240)	(517630)		(9750)	(16600)	(2180)
⁶² As	(-25000)	(499600)		(17300)	(15000)	(-1500)
⁶³ Mn	-46800 300	535700 300	8800 300		6400 400	12900 500
⁶³ Fe	-55510 140	543670 140	6320 150		4690 140	14300 300
⁶³ Co	-61837 20	549207 20	3672 20		8480 30	10228 25
⁶³ Ni	-65509.5 14	552097.0 14	66.945 4		6837.85 7	11370 20
⁶³ Cu	-65576.5 14	551381.6 14			10853 4	6122.44 7
⁶³ Zn	-62209.7 21	547232.4 21		3366.8 16	9113 10	6704 4
⁶³ Ga	-56690 100	540930 100		5520 100	12760 100	2810 100
⁶³ Ge	(-46910)	(530370)		(9780)	(12740)	(2200)
⁶³ As	(-33800)	(516500)		(13100)	(16900)	(-1100)
⁶⁴ Mn	-43100 300	540100 300	11800 400		4400 400	
⁶⁴ Fe	-54900 220	551130 220	4890 220		7500 300	15400 400
⁶⁴ Co	-59790 20	555231 20	7307 20		6020 30	11570 150
⁶⁴ Ni	-67096.2 15	561755.0 15			9658.01 19	12548 20
⁶⁴ Cu	-65421.1 14	559297.5 14	578.8 9	1675.10 20	7915.96 11	7200.56 11
⁶⁴ Zn	-66000.0 17	559094.0 17			11861.6 15	7712.5 9
⁶⁴ Ga	-58835 4	551147 4		7165 4	10220 100	3914 4
⁶⁴ Ge	-54430 250	545950 250		4410 250	(15600)	5000 300
⁶⁴ As	(-39700)	(530400)		(14800)	(13900)	(0)
⁶⁵ Mn	-40900 600	546000 600	10400 600		5900 600	
⁶⁵ Fe	-51300 300	555600 300	7900 300		4500 400	15500 400
⁶⁵ Co	-59164 13	562677 13	5958 13		7446 24	11550 220
⁶⁵ Ni	-65122.9 15	567853.0 15	2136.7 10		6098.01 20	12622 20
⁶⁵ Cu	-67259.6 17	569207.3 17			9909.8 10	7452.4 10
⁶⁵ Zn	-65908.2 17	567073.6 17		1351.4 4	7979.6 5	7776.1 9
⁶⁵ Ga	-62653.3 18	563036.4 18		3254.9 9	11890 4	3942.4 7
⁶⁵ Ge	-56410 100	556010 100		6240 100	10100 300	4860 100
⁶⁵ As	(-47100)	(545900)		(9400)	(15500)	(-100)
⁶⁵ Se	(-32900)	(531000)		(14100)		(600)
⁶⁶ Fe	-50300 300	562700 300	5700 400		7100 400	16700 600
⁶⁶ Co	-56100 300	567600 300	10000 300		5000 300	12100 400
⁶⁶ Ni	-66029 16	576830 16	225 16		8977 16	14153 21
⁶⁶ Cu	-66254.2 17	576273.3 17	2642.4 13		7065.93 11	8420.3 10
⁶⁶ Zn	-68896.6 15	578133.3 15			11059.7 12	8926.0 12
⁶⁶ Ga	-63722 3	572176 3		5175 3	9140 3	5102 3
⁶⁶ Ge	-61620 30	569290 30		2100 30	13280 100	6260 30
⁶⁶ As	(-51820)	(558710)		(9800)	(12800)	(2700)
⁶⁶ Se	(-41700)	(547800)		(10100)	(16900)	(2000)
⁶⁷ Fe	-46600 500	567000 500	8700 500		4300 600	
⁶⁷ Co	-55300 300	575000 300	8400 300		7300 400	12300 400
⁶⁷ Ni	-63743 19	582615 19	3558 21		5785 25	15000 300
⁶⁷ Cu	-67300 8	585391 8	577 8		9118 8	8561 18
⁶⁷ Zn	-67877.4 16	585185.5 16			7052.2 4	8912.2 13
⁶⁷ Ga	-66877.0 18	583402.7 18		1000.5 13	11227 3	5269.4 13
⁶⁷ Ge	-62654 5	578398 5		4223 5	9100 30	6222 6
⁶⁷ As	-56640 100	571610 100		6010 100	(12890)	2310 100
⁶⁷ Se	(-46490)	(560670)		(10150)	(12800)	(2000)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁶⁸ Fe	(-44200)	(572700)	(7600)		(5700)	
⁶⁸ Co	-51800 300	579600 300	11700 300		4600 400	12500 600
⁶⁸ Ni	-63486 17	590430 17	2060 50		7815 25	15500 300
⁶⁸ Cu	-65540 50	591700 50	4460 50		6310 50	9090 50
⁶⁸ Zn	-70004.3 16	595383.7 16			10198.2 5	9993 8
⁶⁸ Ga	-67083.2 20	591680.2 20		2921.1 12	8277.5 18	6494.7 13
⁶⁸ Ge	-66977 6	590792 6		106 6	12394 8	7389 6
⁶⁸ As	-58880 100	581910 100		8100 100	10300 140	3510 100
⁶⁸ Se	(-54100)	(576400)		(4700)	(15700)	(4800)
⁶⁸ Br	(-38900)	(560400)		(15300)		(-300)
⁶⁹ Co	-51000 400	586800 400	9300 400		7300 500	(14100)
⁶⁹ Ni	-60380 140	595390 140	5360 140		4960 140	15800 400
⁶⁹ Cu	-65740 8	599973 8	2675 8		8270 50	9543 18
⁶⁹ Zn	-68415.2 17	601865.9 17	906 3		6482.2 5	10160 50
⁶⁹ Ga	-69321 3	601990 3			10309 3	6606 3
⁶⁹ Ge	-67094 3	598980 3		2227.3 5	8188 7	7300 3
⁶⁹ As	-63080 30	594180 30		4010 30	12270 100	3390 30
⁶⁹ Se	-56300 30	586620 30		6780 40	(10200)	4710 110
⁶⁹ Br	(-46700)	(576200)		(9600)	(15900)	(-200)
⁷⁰ Co	(-46800)	(590600)	(12700)		(3800)	
⁷⁰ Ni	-59500 300	602600 300	3500 300		7200 400	15700 500
⁷⁰ Cu	-62961 15	605265 15	6599 14		5292 16	9870 140
⁷⁰ Zn	-69560 3	611082 3			9216 3	11108 7
⁷⁰ Ga	-68905 3	609645 3	1656 3	654.7 16	7655.1 8	7779 3
⁷⁰ Ge	-70560.7 17	610517.9 17			11538 3	8528 3
⁷⁰ As	-64340 50	603520 50		6220 50	9330 60	4540 50
⁷⁰ Se	(-61940)	(600330)		(2400)	(13710)	(6150)
⁷⁰ Br	(-51600)	(589200)		(10400)	(13000)	(2600)
⁷⁰ Kr	(-41000)	(577800)		(10600)		(1600)
⁷¹ Co	(-45000)	(596900)	(10900)		(6300)	
⁷¹ Ni	-55900 400	607000 400	6900 400		4500 500	(16400)
⁷¹ Cu	-62760 40	613140 40	4560 40		7880 40	10600 300
⁷¹ Zn	-67322 11	616915 11	2813 11		5834 10	11650 17
⁷¹ Ga	-70134.6 19	618945.6 19			9301 3	7864 3
⁷¹ Ge	-69905.2 17	617933.9 17		229.4 7	7415.90 5	8289 3
⁷¹ As	-67893 4	615139 4		2013 4	11620 50	4621 4
⁷¹ Se	(-63090)	(609560)		(4800)	(9200)	(6040)
⁷¹ Br	(-56600)	(602300)		(6500)	(13100)	(1900)
⁷¹ Kr	(-46100)	(591000)		(10500)	(13200)	(1800)
⁷² Ni	-54700 500	613900 500	(5200)		6900 600	(17000)
⁷² Cu	(-59900)	(618350)	(8220)		(5210)	(11300)
⁷² Zn	-68126 6	625791 6	458 6		8876 12	12650 40
⁷² Ga	-68584.3 21	625466.6 21	4001.1 23		6521.0 10	8551 11
⁷² Ge	-72585.4 15	628685.4 15			10751.5 20	9739.7 21
⁷² As	-68229 4	623547 4		4356 4	8408 6	5613 5
⁷² Se	-67894 12	622430 12		335 13	(12870)	7291 13
⁷² Br	-59200 300	612900 300		8700 300	(10700)	(3400)
⁷² Kr	-54100 300	607100 300		5040 80	(16100)	(4800)
⁷² Rb	(-38100)	(590300)		(16000)		(-700)
⁷³ Ni	(-50300)	(617600)	(8800)		(3700)	
⁷³ Cu	(-59200)	(625700)	(6300)		(7300)	(11800)
⁷³ Zn	-65410 40	631150 40	4290 40		5350 40	(12790)
⁷³ Ga	-69704 6	634657 6	1593 6		9191 7	8866 9
⁷³ Ge	-71297.0 15	635468.3 15			6782.90 5	10001.6 23
⁷³ As	-70956 4	634345 4		341 4	10798 5	5660 4
⁷³ Se	-68216 11	630823 11		2740 10	8393 16	7276 11
⁷³ Br	-63560 130	625380 130		4660 130	12450 220	2950 130
⁷³ Kr	-56890 140	617930 140		6670 190	10800 300	5000 300
⁷³ Rb	(-46300)	(606500)		(10600)	(16200)	(-600)
⁷⁴ Ni	(-48700)	(624100)	(7100)		(6500)	
⁷⁴ Cu	(-55800)	(630400)	(9900)		(4700)	(12800)
⁷⁴ Zn	-65710 50	639520 50	2340 90		8370 60	(13800)
⁷⁴ Ga	-68050 70	641080 70	5370 70		6420 70	9930 80
⁷⁴ Ge	-73421.9 15	645664.4 15			10196.20 6	11007 6
⁷⁴ As	-70859.5 22	642319.7 22	1353.0 18	2562.4 17	7975 4	6851.4 17
⁷⁴ Se	-72212.5 15	642890.3 15			12068 11	8545 4
⁷⁴ Br	-65306 15	635201 15		6907 15	9820 130	4379 18
⁷⁴ Kr	-62170 60	631280 60		3140 60	13350 150	5900 140
⁷⁴ Rb	-51700 400	620100 400		10400 400	(13500)	2100 500

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁷⁵ Ni	(-44200)	(627600)	(10400)		(3500)	
⁷⁵ Cu	(-54600)	(637200)	(7900)		(6800)	(13100)
⁷⁵ Zn	-62470 70	644350 70	6000 70		4830 90	(13900)
⁷⁵ Ga	-68464 7	649560 7	3392 7		8480 70	10040 50
⁷⁵ Ge	-71855.8 15	652169.7 15	1176.6 10		6505.22 8	11090 70
⁷⁵ As	-73032.3 16	652563.9 17			10244.2 19	6899.4 9
⁷⁵ Se	-72168.7 15	650917.9 15		863.6 8	8027.53 8	8598.2 18
⁷⁵ Br	-69139 14	647106 14		3030 14	11904 20	4215 14
⁷⁵ Kr	-64240 15	641425 15		4899 21	10140 60	6223 22
⁷⁵ Rb	-57220 8	633622 8		7020 17	13600 400	2340 60
⁷⁵ Sr	(-46600)	(622300)		(10600)		(2200)
⁷⁶ Ni	(-42200)	(633700)	(8600)		(6100)	
⁷⁶ Cu	(-50700)	(641500)	(11300)		(4200)	(13900)
⁷⁶ Zn	-62040 120	651990 120	4160 80		7650 140	(14800)
⁷⁶ Ga	-66200 90	655370 90	7010 90		5810 90	11020 110
⁷⁶ Ge	-73212.7 15	661598.0 15			9428.3 5	12038 7
⁷⁶ As	-72289.4 17	659892.3 17	2962.0 8	923.3 9	7328.44 7	7722.6 10
⁷⁶ Se	-75251.4 15	662071.9 15			11154.1 3	9508.1 8
⁷⁶ Br	-70289 9	656327 9		4963 9	9221 16	5409 9
⁷⁶ Kr	-68977 11	654233 11		1311 14	12808 16	7128 17
⁷⁶ Rb	-60477 8	644950 8		8500 13	11328 10	3526 17
⁷⁶ Sr	(-54400)	(638100)		(6100)	(15800)	(4500)
⁷⁷ Ni	(-37200)	(636800)	(11900)		(3100)	
⁷⁷ Cu	(-49100)	(647900)	(9500)		(6400)	(14200)
⁷⁷ Zn	-58600 130	656630 130	7270 120		4630 180	(15200)
⁷⁷ Ga	-65870 60	663110 60	5340 60		7740 110	11120 130
⁷⁷ Ge	-71214.0 18	667670.6 18	2702.0 21		6072.6 11	12300 90
⁷⁷ As	-73916.0 22	669590.2 22	682.9 18		9697.9 19	7992.2 18
⁷⁷ Se	-74598.9 15	669490.8 15			7418.81 7	9598.4 8
⁷⁷ Br	-73234 3	667343 3		1365 3	11017 10	5271 3
⁷⁷ Kr	-70170 9	663497 9		3064 9	9264 11	7170 13
⁷⁷ Rb	-64826 8	657370 8		5344 11	12420 10	3137 13
⁷⁷ Sr	-57970 150	649740 150		6850 150	(11700)	4790 150
⁷⁷ Y	(-46900)	(637900)		(11000)		(-200)
⁷⁸ Ni	(-34700)	(642400)	(10100)		(5600)	
⁷⁸ Cu	(-44900)	(651700)	(12400)		(3800)	(14900)
⁷⁸ Zn	-57220 160	663310 160	6440 140		6690 210	(15400)
⁷⁸ Ga	-63660 80	668970 80	8200 80		5860 100	12350 160
⁷⁸ Ge	-71862 4	676390 4	954 10		8719 4	13280 60
⁷⁸ As	-72816 10	676562 10	4210 10		6971 10	8891 10
⁷⁸ Se	-77025.5 15	679988.7 15			10498.0 3	10398.5 18
⁷⁸ Br	-73452 4	675633 4	706 8	3574 4	8289 5	6142 4
⁷⁸ Kr	-74158 7	675557 7			12059 7	8213 7
⁷⁸ Rb	-66934 8	667550 8		7224 10	10179 10	4053 12
⁷⁸ Sr	-63172 8	663005 8		3762 10	13270 150	5635 10
⁷⁸ Y	(-52600)	(651700)		(10500)	(13800)	(1900)
⁷⁹ Cu	(-42700)	(657700)	(10700)		(5900)	(15300)
⁷⁹ Zn	(-53400)	(667600)	(9090)		(4200)	(15800)
⁷⁹ Ga	-62490 120	675870 120	7000 80		6900 140	12550 200
⁷⁹ Ge	-69490 90	682090 90	4150 90		5700 90	13110 120
⁷⁹ As	-73636 6	685453 6	2281 6		8891 11	9063 7
⁷⁹ Se	-75917.1 16	686951.6 16	150.7 18		6962.9 7	10390 10
⁷⁹ Br	-76067.8 19	686319.9 19			10687 4	6331.2 16
⁷⁹ Kr	-74442 4	683912 4		1626 3	8355 8	8279 5
⁷⁹ Rb	-70793 7	679480 7		3649 8	11930 10	3923 7
⁷⁹ Sr	-65475 9	673380 9		5318 11	10374 11	5830 11
⁷⁹ Y	-58400 500	665500 500		7100 500	(13800)	2500 500
⁸⁰ Zn	-51780 170	674010 170	7290 120		(6500)	(16400)
⁸⁰ Ga	-59070 120	680520 120	10380 120		4650 170	(13000)
⁸⁰ Ge	-69448 23	690118 23	2670 18		8030 90	14250 120
⁸⁰ As	-72118 21	692006 21	5641 21		6553 22	9920 90
⁸⁰ Se	-77759.2 19	696865.0 19			9913.4 17	11412 5
⁸⁰ Br	-75888.6 19	694212.1 19	2004 4	1870.6 3	7892.19 20	7260.5 18
⁸⁰ Kr	-77893 4	695434 4			11522 5	9114 4
⁸⁰ Rb	-72170 7	688929 7		5723 8	9449 9	5017 8
⁸⁰ Sr	-70302 8	686278 8		1868 10	12899 11	6798 10
⁸⁰ Y	(-61200)	(676400)		(9100)	(10900)	(3000)
⁸⁰ Zr	(-55300)	(669800)		(5800)		(4300)
⁸¹ Zn	(-46100)	(676400)	(11900)		(2400)	

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁸¹ Ga	-57980 190	687510 190	8320 150		6990 230	13500 300
⁸¹ Ge	-66300 120	695040 120	6230 120		4930 120	14520 170
⁸¹ As	-72532 6	700492 6	3856 5		8486 22	10374 24
⁸¹ Se	-76388.9 20	703566.0 20	1585 3		6701.0 6	11560 21
⁸¹ Br	-77974 3	704369 3			10157 3	7504 3
⁸¹ Kr	-77693 3	703306 3		280.7 5	7872 3	9094 3
⁸¹ Rb	-75455 6	700285 6		2238 6	11357 9	4851 6
⁸¹ Sr	-71524 8	695571 8		3932 10	9293 11	6643 10
⁸¹ Y	-66010 60	689280 60		5510 60	(12900)	3000 60
⁸¹ Zr	-58900 300	681300 300		7200 300	(11600)	(5000)
⁸² Zn	(-42100)	(680400)	(10900)		(4000)	
⁸² Ga	(-52900)	(690500)	(12600)		(3000)	(14100)
⁸² Ge	-65540 150	702350 150	4700 140		7310 200	14850 250
⁸² As	-70240 70	706270 70	7350 70		5780 70	11230 140
⁸² Se	-77593.2 21	712841.6 21			9275.6 13	12350 5
⁸² Br	-77496 3	711962 3	3092.6 15	97.6 24	7592.90 20	8396 3
⁸² Kr	-80588 3	714272 3			10966.3 15	9903.2 15
⁸² Rb	-76187 7	709088 7		4401 7	8803 9	5783 7
⁸² Sr	-76007 6	708126 6		180 9	12554 9	7840 8
⁸² Y	-68190 100	699530 100		7820 100	10250 120	3960 100
⁸² Zr	-64200 500	694700 500		4000 500	13400 600	5500 500
⁸² Nb	(-53000)	(682700)		(11200)		(1400)
⁸³ Ga	(-49500)	(695200)	(11500)		(4600)	(14700)
⁸³ Ge	(-61000)	(705900)	(8900)		(3500)	(15300)
⁸³ As	-69880 220	713980 220	5460 220		7710 230	11600 300
⁸³ Se	-75340 4	718660 4	3668 5		5818 3	12390 70
⁸³ Br	-79008 4	721546 4	972 4		9584 5	8704 4
⁸³ Kr	-79981 3	721736 3			7464 4	9774 4
⁸³ Rb	-79071 6	720044 6		910 7	10955 9	5772 6
⁸³ Sr	-76795 9	716986 9		2276 6	8860 10	7897 11
⁸³ Y	-72330 40	711740 40		4470 40	12210 110	3610 40
⁸³ Zr	-66460 90	705090 90		5870 90	10300 500	5560 140
⁸³ Nb	-59000 300	696800 300		7500 300	(14100)	2100 600
⁸⁴ Ga	(-44400)	(698100)	(14000)		(3000)	
⁸⁴ Ge	(-58400)	(711400)	(7700)		(5500)	(16200)
⁸⁴ As	(-66100)	(718300)	(9900)		(4300)	(12400)
⁸⁴ Se	-75949 15	727341 15	1830 30		8681 15	13360 220
⁸⁴ Br	-77775 25	728384 25	4654 25		6840 30	9720 30
⁸⁴ Kr	-82430 3	732256 3			10520.4 19	10710 4
⁸⁴ Rb	-79748 3	728793 3	894 3	2681.3 23	8749 6	7057 3
⁸⁴ Sr	-80643 3	728904 3			11919 9	8861 7
⁸⁴ Y	-74230 170	721710 170		6410 170	9970 170	4730 170
⁸⁴ Zr	(-71500)	(718200)		(2700)	(13100)	(6500)
⁸⁴ Nb	(-61900)	(707800)		(9600)	(11000)	(2700)
⁸⁴ Mo	(-55800)	(700900)		(6100)		(4100)
⁸⁵ Ge	(-53400)	(714400)	(10100)		(3100)	(16300)
⁸⁵ As	(-63500)	(723800)	(8900)		(5500)	(12400)
⁸⁵ Se	-72430 30	731890 30	6182 23		4550 30	(13600)
⁸⁵ Br	-78608 19	737288 19	2870 19		8900 30	9947 24
⁸⁵ Kr	-81478 3	739376 3	687.0 19		7119 4	10990 30
⁸⁵ Rb	-82164.8 25	739280.2 25			10488 3	7024 3
⁸⁵ Sr	-81100 4	737433 4		1065 3	8529 4	8641 4
⁸⁵ Y	-77845 25	733396 25		3255 25	11680 170	4490 30
⁸⁵ Zr	-73150 100	727920 100		4690 100	(9700)	6210 200
⁸⁵ Nb	-67150 220	721140 220		6000 200	(13300)	(2900)
⁸⁵ Mo	(-59100)	(712300)		(8100)	(11300)	(4500)
⁸⁶ Ge	(-50000)	(719100)	(9400)		(4700)	
⁸⁶ As	(-59400)	(727700)	(11100)		(4000)	(13300)
⁸⁶ Se	-70537 16	738070 16	5099 11		6180 30	(14300)
⁸⁶ Br	-75636 12	742387 12	7626 11		5099 23	10500 30
⁸⁶ Kr	-83262 5	749231 5			9855 5	11943 20
⁸⁶ Rb	-82744.7 25	747931.4 25	1774.7 14	517 5	8651.2 10	8555.8 22
⁸⁶ Sr	-84519.4 23	748923.8 23			11491 3	9643.5 17
⁸⁶ Y	-79279 14	742901 14		5240 14	9510 30	5468 14
⁸⁶ Zr	-77810 30	740650 30		1470 30	12730 110	7250 40
⁸⁶ Nb	-69830 90	731890 90		7980 80	10750 240	3960 130
⁸⁶ Mo	(-65000)	(726300)		(4800)	(14000)	(5200)
⁸⁶ Tc	(-53100)	(713600)		(11900)		(1400)
⁸⁷ As	(-56300)	(732700)	(10300)		(5000)	(13500)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁸⁷ Se	-66580 40	742180 40	7280 40		4110 40	(14500)
⁸⁷ Br	-73853 18	748676 18	6853 18		6289 21	10606 24
⁸⁷ Kr	-80706 5	754746 5	3887 5		5515.4 8	12359 11
⁸⁷ Rb	-84593 3	757851 3	283.3 15		9919.6 21	8620 5
⁸⁷ Sr	-84876.2 23	757351.9 23			8428.12 17	9420.5 15
⁸⁷ Y	-83015 3	754708 3		1861.6 14	11807 14	5784.2 14
⁸⁷ Zr	-79349 8	750260 8		3665 8	9610 30	7359 16
⁸⁷ Nb	-74180 60	744310 60		5170 60	12420 100	3660 70
⁸⁷ Mo	-67690 220	737040 220		6490 210	(10700)	5150 240
⁸⁷ Tc	(-59100)	(727700)		(8600)	(14100)	(1400)
⁸⁸ As	(-51600)	(736100)	(12200)		(3400)	
⁸⁸ Se	-63870 50	747550 50	6850 30		5370 60	(14900)
⁸⁸ Br	-70730 40	753620 40	8960 40		4950 40	11440 50
⁸⁸ Kr	-79688 14	761799 14	2914 14		7053 13	13124 22
⁸⁸ Rb	-82602 4	763931 4	5316 3		6080 3	9185 6
⁸⁸ Sr	-87917.5 23	768464.5 23			11112.63 22	10613.6 15
⁸⁸ Y	-84295 3	764060 3		3622.6 15	9351.6 20	6707.7 15
⁸⁸ Zr	-83625 10	762607 10		670 10	12347 13	7900 10
⁸⁸ Nb	(-76430)	(754630)		(7200)	(10320)	(4370)
⁸⁸ Mo	-72701 20	750119 20		(3720)	13080 220	5810 60
⁸⁸ Tc	(-62600)	(739200)		(10100)	(11500)	(2200)
⁸⁹ Se	(-59600)	(751300)	(9000)		(3800)	(15200)
⁸⁹ Br	-68560 60	759530 60	8160 30		5910 70	11980 80
⁸⁹ Kr	-76720 50	766900 50	4990 50		5100 50	13280 60
⁸⁹ Rb	-81703 7	771104 7	4501 6		7173 7	9305 15
⁸⁹ Sr	-86204.9 23	774823.2 23	1496.6 23		6358.71 13	10892 3
⁸⁹ Y	-87701.5 24	775537.5 24			11478 3	7073.0 23
⁸⁹ Zr	-84869 3	771923 3		2832 3	9315 10	7863 4
⁸⁹ Nb	-80580 40	766850 40		4290 40	(12230)	4240 40
⁸⁹ Mo	-75004 15	760493 15		5580 40	10374 25	(5870)
⁸⁹ Tc	-67490 210	752200 210		7510 210	(13000)	2080 210
⁸⁹ Ru	(-59500)	(743400)		(8000)		(4200)
⁹⁰ Se	(-56400)	(756200)	(8200)		(4900)	
⁹⁰ Br	-64610 80	763650 80	10350 80		4120 100	(12300)
⁹⁰ Kr	-74959 19	773214 19	4392 17		6310 60	13690 60
⁹⁰ Rb	-79351 8	776823 8	6590 8		5719 10	9920 50
⁹⁰ Sr	-85941 3	782631 3	546.2 14		7808 3	11527 7
⁹⁰ Y	-86487.3 24	782394.6 24	2282.0 17		6857.08 15	7571.4 23
⁹⁰ Zr	-88769.3 22	783894.3 22			11971 3	8356.8 17
⁹⁰ Nb	-82658 5	777001 5		6111 4	10150 40	5078 5
⁹⁰ Mo	-80169 6	773730 6		2489 4	13236 16	6880 40
⁹⁰ Tc	(-71000)	(763800)		(9100)	(11600)	(3300)
⁹⁰ Ru	(-65400)	(757400)		(5600)	(14000)	(5200)
⁹¹ Se	(-50900)	(758800)	(10700)		(2500)	
⁹¹ Br	-61550 70	768660 70	9800 40		5010 110	(12400)
⁹¹ Kr	-71350 60	777680 60	6440 60		4460 60	14030 100
⁹¹ Rb	-77788 8	783331 8	5861 5		6508 11	10118 20
⁹¹ Sr	-83649 7	788410 7	2699 7		5779 7	11587 10
⁹¹ Y	-86349 3	790327 3	1544.0 20		7933 3	7696 3
⁹¹ Zr	-87892.6 22	791088.8 22			7194.6 5	8694.3 18
⁹¹ Nb	-86639 3	789053 3		1253.4 24	12052 5	5158.8 24
⁹¹ Mo	-82205 12	783837 12		4434 13	10107 14	6836 13
⁹¹ Tc	-75990 200	776830 200		6220 200	(13000)	3110 200
⁹¹ Ru	-68600 500	768600 500		7400 500	(11200)	(4800)
⁹² Br	-56620 50	771800 50	12200 50		3140 90	(13000)
⁹² Kr	-68827 14	783224 14	5987 10		5550 60	14570 70
⁹² Rb	-74814 10	788429 10	8105 8		5098 10	10750 60
⁹² Sr	-82920 11	795752 11	1911 12		7342 11	12421 12
⁹² Y	-84831 10	796881 10	3625 10		6553 10	8470 11
⁹² Zr	-88456.0 22	799723.6 22			8634.8 3	9396.4 20
⁹² Nb	-86450 3	796936 3	356 4	2005.7 18	7882 3	5846.7 18
⁹² Mo	-86806 4	796509 4			12672 12	7456 4
⁹² Tc	-78940 30	787860 30		7870 30	11020 200	4020 30
⁹² Ru	(-74400)	(782500)		(4500)	(13900)	(5700)
⁹² Rh	(-63400)	(770700)		(11000)		(2100)
⁹³ Br	(-53000)	(776300)	(11100)		(4500)	
⁹³ Kr	-64100 100	786570 100	8600 100		3350 100	14770 110
⁹³ Rb	-72702 12	794388 12	7460 9		5959 14	11164 17
⁹³ Sr	-80162 14	801066 14	4083 14		5314 16	12636 15

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁹³ Y	-84245 11	804366 11	2874 11		7486 14	8614 15
⁹³ Zr	-87118.8 22	806457.8 22	91.1 16		6734.2 6	9577 10
⁹³ Nb	-87210.0 23	805766.5 23			8831.0 20	6042.9 16
⁹³ Mo	-86805 4	804579 4		405 4	8069.71 9	7643 4
⁹³ Tc	-83604 4	800596 4		3200.9 10	12740 30	4086.5 10
⁹³ Ru	-77270 90	793480 90		6340 90	(10900)	5620 90
⁹³ Rh	(-69200)	(784600)		(8100)	(13900)	(2100)
⁹⁴ Kr	(-61200)	(791800)	(7300)		(5200)	(15500)
⁹⁴ Rb	-68530 14	798288 14	10307 13		3900 17	11720 100
⁹⁴ Sr	-78837 7	807812 7	3511 5		6746 15	13424 14
⁹⁴ Y	-82348 5	810541 5	4919 5		6175 12	9475 15
⁹⁴ Zr	-87267.6 24	814677.8 24			8220.0 19	10312 11
⁹⁴ Nb	-86366.1 23	812993.9 23	2045.1 19	901.5 22	7227.47 9	6536.2 16
⁹⁴ Mo	-88411.2 18	814256.7 18			9678 4	8490.2 19
⁹⁴ Tc	-84155 4	809219 4		4256 4	8623 6	4640 5
⁹⁴ Ru	-82563 13	806843 13		1593 14	13370 90	6248 13
⁹⁴ Rh	(-72900)	(796400)		(9600)	(11800)	(3000)
⁹⁴ Pd	(-66400)	(789100)		(6600)		(4500)
⁹⁵ Kr	(-56100)	(794800)	(9700)		(3000)	
⁹⁵ Rb	-65863 16	803691 16	9296 18		5404 17	(11900)
⁹⁵ Sr	-75159 13	812205 13	6080 9		4393 14	13918 18
⁹⁵ Y	-81239 10	817503 10	4420 10		6962 11	9691 12
⁹⁵ Zr	-85658.9 24	821140.4 24	1124.5 19		6462.6 9	10600 5
⁹⁵ Nb	-86783.3 19	821482.5 19	925.6 5		8488.6 20	6804.8 20
⁹⁵ Mo	-87708.9 18	821625.8 18			7369.06 10	8631.8 19
⁹⁵ Tc	-86018 5	819152 5		1691 5	9933 6	4895 5
⁹⁵ Ru	-83445 12	815797 12		2572 13	8954 14	6579 13
⁹⁵ Rh	-78340 150	809900 150		5110 150	(13500)	3060 150
⁹⁵ Pd	(-70200)	(800900)		(8200)	(11900)	(4500)
⁹⁶ Kr	(-53300)	(799900)	(8000)		(5200)	
⁹⁶ Rb	-61227 19	807127 19	11756 21		3435 17	(12400)
⁹⁶ Sr	-72983 15	818101 15	5371 8		5896 19	14409 20
⁹⁶ Y	-78355 13	822690 13	7087 12		5187 16	10485 18
⁹⁶ Zr	-85442 3	828994 3	164 4		7854 3	11491 10
⁹⁶ Nb	-85605 4	828376 4	3187 3		6893 3	7235 4
⁹⁶ Mo	-88791.9 18	830780.0 18			9154.26 5	9297.5 5
⁹⁶ Tc	-85819 5	827024 5	248 10	2973 5	7872 7	5399 5
⁹⁶ Ru	-86067 8	826490 8			10693 10	7338 9
⁹⁶ Rh	-79620 13	819261 13		6446 10	9360 150	3464 14
⁹⁶ Pd	-76170 150	815030 150		3450 150	(14100)	5120 210
⁹⁶ Ag	(-64600)	(802600)		(11600)		(1700)
⁹⁷ Rb	-58375 23	812346 23	10420 24		5220 21	(12400)
⁹⁷ Sr	-68795 18	821984 18	7467 15		3883 23	14857 24
⁹⁷ Y	-76262 11	828669 11	6688 10		5979 16	10568 18
⁹⁷ Zr	-82950 3	834574 3	2658.1 19		5580 3	11884 13
⁹⁷ Nb	-85608 3	836450 3	1933.9 19		8074 4	7455 3
⁹⁷ Mo	-87541.7 18	837601.2 18			6821.13 25	9226 3
⁹⁷ Tc	-87221 5	836499 5		320 4	9474 7	5719 4
⁹⁷ Ru	-86107 8	834602 8		1115 10	8112 3	7577 10
⁹⁷ Rh	-82580 40	830300 40		3520 40	11030 40	3810 40
⁹⁷ Pd	-77800 300	824700 300		4800 300	9700 300	5500 300
⁹⁷ Ag	(-70800)	(816900)		(7000)	(14300)	(1900)
⁹⁸ Rb	-54270 30	816310 30	12344 23		3960 30	
⁹⁸ Sr	-66610 24	827870 24	5826 10		5890 30	15520 30
⁹⁸ Y	-72436 23	832914 23	8830 14		4245 25	10930 30
⁹⁸ Zr	-81266 19	840962 19	2261 20		6388 19	12293 22
⁹⁸ Nb	-83527 6	842440 6	4586 6		5991 6	7867 6
⁹⁸ Mo	-88112.9 18	846243.7 18			8642.50 7	9794.0 19
⁹⁸ Tc	-86429 4	843777 4	1796 7	1684 3	7279 5	6176 3
⁹⁸ Ru	-88225 6	844791 6			10189 10	8292 8
⁹⁸ Rh	-83167 12	838951 12		5057 10	8650 40	4349 14
⁹⁸ Pd	-81295 22	836296 22		1873 25	11600 300	6000 40
⁹⁸ Ag	-72870 150	827090 150		8420 150	(10200)	2400 300
⁹⁸ Cd	(-67460)	(820890)		(5420)		(4000)
⁹⁹ Rb	-50930 110	821040 110	11250 100		4730 120	
⁹⁹ Sr	-62170 120	831500 120	8030 120		3630 120	15200 120
⁹⁹ Y	-70204 24	838753 24	7567 14		5840 30	10880 30
⁹⁹ Zr	-77771 20	845538 20	4558 15		4580 30	12620 30
⁹⁹ Nb	-82328 13	849313 13	3639 13		6872 14	8351 23

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
⁹⁹ Mo	-85966.9 18	852169.1 18	1357.2 10		5925.39 15	9729 6
⁹⁹ Tc	-87324.2 19	852743.9 19	293.5 14		8967 3	6500.3 10
⁹⁹ Ru	-87617.7 20	852255.1 20			7464 7	8478 4
⁹⁹ Rh	-85515 10	849370 10		2103 10	10419 16	4579 12
⁹⁹ Pd	-82149 17	845222 17		3365 20	8930 30	6271 21
⁹⁹ Ag	-76720 150	839010 150		5430 150	11920 210	2710 150
⁹⁹ Cd	(-69850)	(831360)		(6900)	(10500)	(4300)
⁹⁹ In	(-60900)	(821600)		(8900)		(700)
¹⁰⁰ Rb	(-46700)	(824900)	(13500)		(3800)	
¹⁰⁰ Sr	-60220 130	837620 130	7080 100		6120 180	16580 170
¹⁰⁰ Y	-67300 80	843920 80	9310 70		5160 80	12410 150
¹⁰⁰ Zr	-76610 40	852440 40	3335 25		6910 40	13690 40
¹⁰⁰ Nb	-79940 30	855000 30	6245 25		5680 30	9460 30
¹⁰⁰ Mo	-86185 6	860459 6			8289 6	11146 12
¹⁰⁰ Tc	-86017.2 22	859508.3 22	3202.3 17	168 6	6764.4 10	7339.3 14
¹⁰⁰ Ru	-89219.5 20	861928.3 20			9673.16 14	9184.3 14
¹⁰⁰ Rh	-85590 20	857516 20		3630 20	8146 22	5261 20
¹⁰⁰ Pd	-85227 11	856371 11		363 23	11149 20	7001 15
¹⁰⁰ Ag	-78150 80	848510 80		7070 80	9510 170	3290 80
¹⁰⁰ Cd	-74260 110	843840 110		3890 70	(12480)	4830 190
¹⁰⁰ In	(-63700)	(832500)		(10500)	(10900)	(1200)
¹⁰⁰ Sn	(-56500)	(824500)		(7270)		(2800)
¹⁰¹ Rb	-43600 170	829850 170	11810 110		(5000)	
¹⁰¹ Sr	-55410 120	840880 120	9510 80		3260 180	(16000)
¹⁰¹ Y	-64910 100	849610 100	8550 90		5690 120	11980 160
¹⁰¹ Zr	-73460 30	857370 30	5485 25		4920 50	13450 80
¹⁰¹ Nb	-78943 19	862070 19	4569 18		7070 30	9630 40
¹⁰¹ Mo	-83512 6	865857 6	2824 24		5398.50 20	10861 25
¹⁰¹ Tc	-86337 24	867899 24	1614 24		8391 24	7441 24
¹⁰¹ Ru	-87950.3 20	868730.3 20			6802.1 7	9222.0 18
¹⁰¹ Rh	-87409 17	867406 17		542 17	9890 30	5478 17
¹⁰¹ Pd	-85429 18	864644 18		1980 4	8273 21	7130 30
¹⁰¹ Ag	-81220 100	859660 100		4200 100	11140 130	3290 100
¹⁰¹ Cd	-75750 150	853400 150		5480 110	9560 190	4880 170
¹⁰¹ In	(-68400)	(845300)		(7300)	(12700)	(1400)
¹⁰¹ Sn	(-59600)	(835600)		(8800)	(11200)	(3100)
¹⁰² Sr	-53080 110	846620 110	8820 70		5740 170	16770 200
¹⁰² Y	-61890 90	854660 90	9850 70		5050 130	13770 150
¹⁰² Zr	-71740 50	863720 50	4610 30		6360 60	14120 110
¹⁰² Nb	-76350 40	867550 40	7210 40		5480 40	10180 50
¹⁰² Mo	-83558 21	873974 21	1010 23		8117 20	11900 30
¹⁰² Tc	-84568 9	874202 9	4530 9		6300 30	8345 10
¹⁰² Ru	-89098.5 20	877949.9 20			9219.59 5	10051 24
¹⁰² Rh	-86776 5	874845 5	1150 5	2323 5	7439 18	6115 5
¹⁰² Pd	-87926 3	875213 3			10569 18	7807 17
¹⁰² Ag	-82000 50	868510 50		5920 50	8850 120	3860 60
¹⁰² Cd	-79420 60	865140 60		2587 8	11740 160	5480 120
¹⁰² In	-70500 300	855500 300		8900 300	(10200)	2100 300
¹⁰² Sn	(-64700)	(848900)		(5800)	(13300)	(3600)
¹⁰³ Y	(-58600)	(859400)	(9800)		(4800)	(12800)
¹⁰³ Zr	-68370 110	868430 110	6950 90		4700 120	13770 140
¹⁰³ Nb	-75320 70	874590 70	5530 30		7040 80	10870 80
¹⁰³ Mo	-80850 60	879340 60	3750 60		5360 60	11790 70
¹⁰³ Tc	-84600 10	882305 10	2660 10		8103 13	8331 23
¹⁰³ Ru	-87259.6 21	884182.3 21	763.3 21		6232.4 3	9980 9
¹⁰³ Rh	-88023 3	884163 3			9318 5	6213.3 21
¹⁰³ Pd	-87480 3	882838 3		543.1 8	7624.7 15	7993 5
¹⁰³ Ag	-84792 17	879368 17		2688 17	10860 60	4154 17
¹⁰³ Cd	-80650 15	874443 15		4142 10	9310 60	5940 60
¹⁰³ In	-74600 25	867611 25		6050 20	12200 300	2470 60
¹⁰³ Sn	(-66900)	(859200)		(7700)	(10300)	(3700)
¹⁰⁴ Y	(-54900)	(863800)	(11400)		(4400)	
¹⁰⁴ Zr	(-66300)	(874500)	(5900)		(6000)	(15000)
¹⁰⁴ Nb	-72230 110	879570 110	8110 90		4980 130	11140 150
¹⁰⁴ Mo	-80330 60	886890 60	2160 40		7560 90	12300 90
¹⁰⁴ Tc	-82490 50	888270 50	5600 50		5960 50	8930 80
¹⁰⁴ Ru	-88092 4	893086 4			8904 3	10781 9
¹⁰⁴ Rh	-86951 3	891162 3	2441 5	1141 4	6999.05 6	6980.0 21
¹⁰⁴ Pd	-89392 5	892821 5			9983 5	8658 5
¹⁰⁴ Ag	-85113 6	887760 6		4279 4	8392 18	4922 7

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁰⁴ Cd	-83976 10	885841 10		1137 11	11397 17	6473 18
¹⁰⁴ In	-76070 140	877150 140		7910 140	9540 140	2710 140
¹⁰⁴ Sn	-71550 150	871850 150		4520 60	(12700)	4240 160
¹⁰⁴ Sb	(-59000)	(858500)		(12500)		(-600)
¹⁰⁵ Zr	(-62400)	(878600)	(8500)		(4100)	(14700)
¹⁰⁵ Nb	-70860 100	886270 100	6490 70		6700 150	(11800)
¹⁰⁵ Mo	-77340 70	891970 70	4950 50		5080 90	12400 130
¹⁰⁵ Tc	-82290 60	896140 60	3640 60		7870 70	9250 80
¹⁰⁵ Ru	-85931 4	898996 4	1917 4		5910.07 19	10730 50
¹⁰⁵ Rh	-87848 5	900131 5	567 3		8968 5	7045 4
¹⁰⁵ Pd	-88414 5	899915 5			7094.1 7	8753 5
¹⁰⁵ Ag	-87069 11	897787 11		1346 11	10027 12	4966 11
¹⁰⁵ Cd	-84330 11	894266 11		2739 4	8425 14	6506 12
¹⁰⁵ In	-79481 17	888635 17		4849 13	11490 140	2794 19
¹⁰⁵ Sn	-73230 80	881600 80		6250 80	9750 170	4450 160
¹⁰⁵ Sb	(-63900)	(871500)		(9300)	(13000)	(-400)
¹⁰⁶ Zr	(-60200)	(884500)	(6800)		(5900)	
¹⁰⁶ Nb	(-67000)	(890500)	(9300)		(4200)	(11900)
¹⁰⁶ Mo	-76257 22	898958 22	3520 17		6990 70	12690 100
¹⁰⁶ Tc	-79777 14	901696 14	6547 11		5560 60	9730 70
¹⁰⁶ Ru	-86324 8	907461 8	39.40 21		8465 8	11320 60
¹⁰⁶ Rh	-86363 8	906718 8	3541 6		6587 7	7722 8
¹⁰⁶ Pd	-89905 5	909477 5			9561.5 3	9346 3
¹⁰⁶ Ag	-86939 5	905729 5	195 8	2965 3	7942 11	5814 3
¹⁰⁶ Cd	-87134 6	905141 6			10875 12	7354 12
¹⁰⁶ In	-80612 13	897837 13		6521 11	9203 21	3571 17
¹⁰⁶ Sn	-77430 50	893870 50		3180 50	12270 100	5240 50
¹⁰⁶ Sb	(-66400)	(882000)		(11100)	(10500)	(400)
¹⁰⁶ Te	(-58000)	(872900)		(8400)		(1400)
¹⁰⁷ Nb	(-65000)	(896600)	(7900)		(6100)	(12100)
¹⁰⁷ Mo	-72940 160	903710 160	6160 60		4750 160	(13200)
¹⁰⁷ Tc	-79100 150	909090 150	4820 90		7390 150	10130 150
¹⁰⁷ Ru	-83920 120	913130 120	2940 120		5670 120	11430 120
¹⁰⁷ Rh	-86861 12	915287 12	1511 13		8569 14	7826 14
¹⁰⁷ Pd	-88372 6	916015 6	33 3		6539 7	9298 9
¹⁰⁷ Ag	-88405 6	915266 6			9537 7	5790 6
¹⁰⁷ Cd	-86988 7	913067 7		1417 4	7926 9	7338 8
¹⁰⁷ In	-83562 13	908858 13		3426 11	11021 18	3717 14
¹⁰⁷ Sn	-78560 80	903080 80		5000 90	9210 90	5240 80
¹⁰⁷ Sb	(-70700)	(894400)		(7900)	(12400)	(500)
¹⁰⁷ Te	(-60500)	(883500)		(10100)	(10600)	(1500)
¹⁰⁸ Nb	(-61000)	(900600)	(10300)		(4000)	
¹⁰⁸ Mo	(-71300)	(910140)	(4640)		(6430)	(13600)
¹⁰⁸ Tc	-75940 130	914000 130	7720 50		4910 200	10280 210
¹⁰⁸ Ru	-83660 120	920930 120	1360 60		7810 170	11840 190
¹⁰⁸ Rh	-85020 110	921510 110	4510 110		6230 110	8380 160
¹⁰⁸ Pd	-89521 4	925236 4			9221 7	9949 12
¹⁰⁸ Ag	-87603 6	922536 6	1649 8	1918 6	7269.6 6	6520 3
¹⁰⁸ Cd	-89253 6	923403 6			10336 9	8137 8
¹⁰⁸ In	-84105 12	917473 12		5148 11	8614 18	4406 14
¹⁰⁸ Sn	-82010 30	914600 30		2092 25	11520 80	5740 30
¹⁰⁸ Sb	(-72510)	(904310)		(9510)	(9900)	(1230)
¹⁰⁸ Te	-65690 150	896710 150		(6800)	(13200)	(2300)
¹⁰⁸ I	(-52600)	(882800)		(13100)		(-700)
¹⁰⁹ Mo	(-67400)	(914300)	(7500)		(4100)	(13700)
¹⁰⁹ Tc	(-74870)	(921000)	(5990)		(7000)	(10860)
¹⁰⁹ Ru	-80850 70	926200 70	4160 70		5270 140	12210 150
¹⁰⁹ Rh	-85012 12	929580 12	2591 12		8070 110	8650 120
¹⁰⁹ Pd	-87603 4	931389 4	1115.9 20		6153.3 3	9880 110
¹⁰⁹ Ag	-88719 3	931723 3			9187 6	6486.9 20
¹⁰⁹ Cd	-88506 4	930727 4		214 3	7324 6	8191 7
¹⁰⁹ In	-86485 6	927924 6		2020 6	10451 12	4521 5
¹⁰⁹ Sn	-82635 10	923291 10		3850 11	8690 30	5818 16
¹⁰⁹ Sb	-76255 19	916129 19		6380 16	(11820)	1530 30
¹⁰⁹ Te	-67580 70	906670 70		8670 70	9970 170	(2360)
¹⁰⁹ I	-57580 150	895890 150		10010 170	(13100)	-820.4 19
¹¹⁰ Mo	(-65700)	(920700)	(5700)		(6400)	
¹¹⁰ Tc	(-71400)	(925600)	(8800)		(4600)	(11300)
¹¹⁰ Ru	-80140 230	933560 230	2810 50		7360 240	(12560)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹¹⁰ Rh	-82950 220	935590 220	5400 220		6010 220	9390 230
¹¹⁰ Pd	-88350 11	940207 11			8818 11	10627 5
¹¹⁰ Ag	-87457 3	938532 3	2892.1 15	893 11	6809.20 10	7142.8 20
¹¹⁰ Cd	-90349 3	940642 3			9915 3	8919.0 15
¹¹⁰ In	-86471 12	935982 12		3878 12	8058 13	5255 12
¹¹⁰ Sn	-85834 16	934562 16		638 19	11270 17	6637 16
¹¹⁰ Sb	(-77530)	(925480)		(8300)	(9350)	(2190)
¹¹⁰ Te	-72280 50	919440 50		(5250)	12770 80	3310 60
¹¹⁰ I	(-60300)	(906700)		(11900)	(10800)	(100)
¹¹⁰ Xe	(-51700)	(897300)		(8700)		(1400)
¹¹¹ Tc	(-69800)	(932100)	(7000)		(6500)	(11400)
¹¹¹ Ru	(-76800)	(938300)	(5500)		(4700)	(12700)
¹¹¹ Rh	(-82290)	(943000)	(3740)		(7400)	(9400)
¹¹¹ Pd	-86030 40	945960 40	2190 40		5750 40	10370 230
¹¹¹ Ag	-88217 3	947363 3	1036.8 14		8831.2 21	7156 11
¹¹¹ Cd	-89254 3	947618 3			6975.84 19	9085.6 15
¹¹¹ In	-88388 5	945969 5		866 5	9988 12	5328 5
¹¹¹ Sn	-85943 7	942742 7		2445 8	8181 16	6761 14
¹¹¹ Sb	(-80840)	(936860)		(5100)	(11400)	(2300)
¹¹¹ Te	-73470 70	928710 70		(7370)	9270 90	(3230)
¹¹¹ I	(-65000)	(919400)		(8500)	(12700)	(-0)
¹¹¹ Xe	(-54400)	(908100)		(10600)	(10800)	(1300)
¹¹² Tc	(-65900)	(936300)	(10000)		(4200)	
¹¹² Ru	(-75900)	(945400)	(3670)		(7100)	(13300)
¹¹² Rh	(-79500)	(948300)	(6800)		(5300)	(10000)
¹¹² Pd	-86337 18	954337 18	288 17		8380 40	(11340)
¹¹² Ag	-86625 17	953842 17	3956 17		6479 17	7880 40
¹¹² Cd	-90581 3	957016 3			9398.1 22	9653 3
¹¹² In	-87994 5	953647 5	663 5	2586 5	7678 6	6030 5
¹¹² Sn	-88658 4	953528 4			10786 6	7559 5
¹¹² Sb	-81603 23	945691 23		7055 23	(8830)	2949 24
¹¹² Te	-77260 160	940560 160		4340 160	11860 180	(3700)
¹¹² I	(-67100)	(929620)		(10200)	(10200)	(910)
¹¹² Xe	-59940 150	921680 150		(7200)	(13600)	(2300)
¹¹² Cs	(-46300)	(907300)		(13700)		(-800)
¹¹³ Tc	(-64000)	(942400)	(8200)		(6100)	
¹¹³ Ru	(-72200)	(949800)	(6600)		(4400)	(13500)
¹¹³ Rh	(-78800)	(955600)	(4900)		(7300)	(10200)
¹¹³ Pd	-83690 40	959760 40	3340 40		5430 40	(11400)
¹¹³ Ag	-87033 17	962322 17	2016 17		8480 24	7985 24
¹¹³ Cd	-89050 3	963556 3	316 3		6540.2 6	9714 17
¹¹³ In	-89365 3	963090 3			9442 5	6074 3
¹¹³ Sn	-88329 4	961271 4		1036 3	7742.9 18	7624 5
¹¹³ Sb	-84424 24	956584 24		3905 24	10890 30	3055 24
¹¹³ Te	(-78320)	(949700)		(6100)	(9100)	(4010)
¹¹³ I	-71120 50	941720 50		(7200)	(12100)	1150 170
¹¹³ Xe	-62060 80	931870 80		9060 100	10190 170	(2260)
¹¹³ Cs	-51680 150	920710 150		10380 170	(13500)	-978 13
¹¹⁴ Ru	(-70800)	(956500)	(4800)		(6700)	(14100)
¹¹⁴ Rh	(-75600)	(960500)	(7900)		(4900)	(10700)
¹¹⁴ Pd	-83494 25	967636 25	1451 25		7870 50	(12000)
¹¹⁴ Ag	-84940 30	968300 30	5080 30		5980 30	8540 50
¹¹⁴ Cd	-90021 3	972599 3			9042.7 3	10277 17
¹¹⁴ In	-88568 3	970364 3	1988.7 7	1453 3	7274.4 12	6808 3
¹¹⁴ Sn	-90557 3	971570 3			10299 3	8480.7 13
¹¹⁴ Sb	-84680 200	964910 200		5880 200	8320 200	3640 200
¹¹⁴ Te	(-81930)	(961380)		(2700)	(11700)	(4800)
¹¹⁴ I	(-72800)	(951500)		(9100)	(9700)	(1800)
¹¹⁴ Xe	(-66940)	(944820)		(5900)	(12950)	(3100)
¹¹⁴ Cs	(-54600)	(931700)		(12400)	(11000)	(-200)
¹¹⁵ Ru	(-66800)	(960600)	(7600)		(4100)	
¹¹⁵ Rh	-74400 500	967400 500	6000 500		(6900)	(10900)
¹¹⁵ Pd	-80400 60	972620 60	4580 50		4980 70	(12100)
¹¹⁵ Ag	-84990 30	976420 30	3100 30		8110 40	8780 40
¹¹⁵ Cd	-88090 3	978740 3	1446 4		6140.9 6	10430 30
¹¹⁵ In	-89536 4	979403 4	495 4		9039 4	6804 4
¹¹⁵ Sn	-90031 3	979116 3			7545.7 16	8752.0 18
¹¹⁵ Sb	-87001 20	975304 20		3030 20	10400 200	3733 20
¹¹⁵ Te	-82360 110	969880 110		4640 110	(8500)	4980 230
¹¹⁵ I	(-76400)	(963100)		(6000)	(11700)	(1800)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹¹⁵ Xe	(-68440)	(954400)		(8000)	(9600)	(2900)
¹¹⁵ Cs	(-59700)	(944800)		(8800)	(13200)	(0)
¹¹⁵ Ba	(-48700)	(933100)		(11000)		(1400)
¹¹⁶ Ru	(-65200)	(967000)	(5900)		(6500)	
¹¹⁶ Rh	(-71100)	(972100)	(8900)		(4700)	(11600)
¹¹⁶ Pd	-79950 50	980240 50	2610 30		7620 80	12800 500
¹¹⁶ Ag	-82560 40	982060 40	6160 40		5640 60	9450 80
¹¹⁶ Cd	-88719 3	987440 3			8700.2 20	11020 30
¹¹⁶ In	-88249 4	986187 4	3274 4	470 4	6784.3 8	7448 4
¹¹⁶ Sn	-91523 3	988679 3			9563.41 11	9276 4
¹¹⁶ Sb	-86816 6	983190 6		4707 5	7886 21	4074 5
¹¹⁶ Te	-85320 90	980910 90		1500 90	11020 140	5600 90
¹¹⁶ I	-77570 140	972380 140		7750 110	(9200)	2500 180
¹¹⁶ Xe	(-72910)	(966940)		(4660)	(12500)	(3800)
¹¹⁶ Cs	-62400 300	955700 300		(10500)	(10800)	(1300)
¹¹⁶ Ba	(-54300)	(946800)		(8100)	(13700)	(1900)
¹¹⁷ Rh	(-69500)	(978700)	(7000)		(6600)	(11700)
¹¹⁷ Pd	(-76500)	(984900)	(5700)		(4700)	(12800)
¹¹⁷ Ag	-82240 40	989820 40	4180 40		7760 60	9580 70
¹¹⁷ Cd	-86425 3	993217 3	2516 6		5777.2 10	11150 40
¹¹⁷ In	-88941 5	994951 5	1455 4		8764 6	7511 6
¹¹⁷ Sn	-90397 3	995624 3			6944.5 11	9437 4
¹¹⁷ Sb	-88640 9	993085 9		1757 9	9895 10	4406 9
¹¹⁷ Te	-85105 19	988768 19		3535 17	7860 90	5578 19
¹¹⁷ I	-80450 70	983330 70		4650 70	10950 160	2420 110
¹¹⁷ Xe	-74010 180	976100 180		6450 180	(9200)	3720 200
¹¹⁷ Cs	-66480 100	967800 100		7520 200	12100 300	(900)
¹¹⁷ Ba	(-57000)	(957500)		(9500)	(10700)	(1800)
¹¹⁸ Rh	(-65700)	(982900)	(9800)		(4300)	
¹¹⁸ Pd	-75540 220	991970 220	4100 200		(7100)	(13300)
¹¹⁸ Ag	-79640 100	995290 100	7060 100		5470 110	(10400)
¹¹⁸ Cd	-86709 20	1001572 20	520 22		8355 20	11750 50
¹¹⁸ In	-87228 8	1001309 8	4423 8		6358 6	8092 8
¹¹⁸ Sn	-91652 3	1004950 3			9326.3 14	9999 5
¹¹⁸ Sb	-87995 4	1000511 4		3657 3	7426 10	4887 3
¹¹⁸ Te	-87717 16	999451 16		278 16	10683.25	6366 18
¹¹⁸ I	-80670 80	991620 80		7040 80	8290 100	2860 80
¹¹⁸ Xe	-77700 1000	987900 1000		2900 1000	11800 1000	4600 1000
¹¹⁸ Cs	-68428 22	977815 22		9300 1000	10020 100	1710 180
¹¹⁸ Ba	(-62000)	(970600)		(6400)	(13100)	(2800)
¹¹⁸ La	(-49800)	(957700)		(12200)		(200)
¹¹⁹ Rh	(-63900)	(989200)	(8100)		(6300)	
¹¹⁹ Pd	(-72000)	(996500)	(6500)		(4600)	(13600)
¹¹⁹ Ag	-78550 70	1002270 70	5350 40		6980 120	10300 240
¹¹⁹ Cd	-83900 60	1006840 60	3800 60		5270 60	11550 120
¹¹⁹ In	-87702 8	1009854 8	2364 7		8545 9	8282 22
¹¹⁹ Sn	-90066 3	1011435 3			6485.2 14	10126 8
¹¹⁹ Sb	-89472 8	1010059 8		594 8	9548 8	5109 8
¹¹⁹ Te	-87179 8	1006984 8		2293.0 20	7533 18	6473 8
¹¹⁹ I	-83670 60	1002690 60		3510 60	11060 90	3240 60
¹¹⁹ Xe	-78660 120	996900 120		5000 110	9000 1000	5280 140
¹¹⁹ Cs	-72336 24	989794 24		6330 120	11980 30	1900 1000
¹¹⁹ Ba	-64200 1000	980900 1000		8100 1000	(10300)	3100 1000
¹¹⁹ La	(-54800)	(970700)		(9400)	(13000)	(100)
¹²⁰ Pd	(-70800)	(1003300)	(5000)		(6800)	(14100)
¹²⁰ Ag	-75770 100	1007560 100	8200 100		5290 120	(11000)
¹²⁰ Cd	-83973 19	1014979 19	1760 40		8140 60	12710 70
¹²⁰ In	-85730 40	1015950 40	5370 40		6100 40	9120 70
¹²⁰ Sn	-91101 3	1020543 3			9107.2 22	10689 7
¹²⁰ Sb	-88421 8	1017080 8	978 13	2681 7	7020 11	5644 7
¹²⁰ Te	-89399 10	1017275 10			10291 13	7216 13
¹²⁰ I	-83784 18	1010878 18		5615 15	8190 70	3894 20
¹²⁰ Xe	-81820 40	1008140 40		1960 40	11230 130	5450 80
¹²⁰ Cs	-73902 21	999431 21		7920 50	9640 30	2530 130
¹²⁰ Ba	-68900 300	993600 300		5000 300	12700 1100	3900 300
¹²⁰ La	(-57700)	(981700)		(11200)	(10900)	(700)
¹²¹ Pd	(-66900)	(1007500)	(7600)		(4200)	
¹²¹ Ag	-74550 190	1014410 190	6400 120		6850 220	(11100)
¹²¹ Cd	-80950 150	1020020 150	4890 150		5050 150	12460 180

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹²¹ In	-85840.30	1024130.30	3360.30		8180.50	9150.30
¹²¹ Sn	-89201.3	1026713.3	388.1.19		6170.8.6	10760.40
¹²¹ Sb	-89589.0.24	1026319.1.24			9239.7	5776.5.20
¹²¹ Te	-88553.25	1024500.25		1036.25	7230.30	7420.30
¹²¹ I	-86282.11	1021447.11		2270.30	10569.16	4172.4
¹²¹ Xe	-82550.24	1016933.24		3730.30	8800.50	6050.30
¹²¹ Cs	-77150.13	1010750.13		5400.20	11319.24	2610.50
¹²¹ Ba	-70300.300	1003200.300		6800.300	9500.400	3700.300
¹²¹ La	(-62400)	(994400)		(7900)	(12800)	(800)
¹²¹ Ce	(-52500)	(983700)		(9900)		(2100)
¹²² Ag	(-71430)	(1019360)	(9100)		(5000)	(11800)
¹²² Cd	(-80570)	(1027720)	(3000)		(7700)	(13300)
¹²² In	-83580.50	1029940.50	6370.50		5810.60	9920.160
¹²² Sn	-89944.3	1035528.3			8814.4.25	11400.30
¹²² Sb	-88324.3.24	1033125.6.24	1978.6.22	1620.3	6806.6.10	6412.3.21
¹²² Te	-90303.3	1034322.3			9821.25	8002.9.23
¹²² I	-86069.6	1029306.6		4234.5	7858.12	4810.30
¹²² Xe	-85170.90	1027630.90		890.90	10700.90	6180.90
¹²² Cs	-78120.15	1019792.15		7050.90	9041.18	2860.30
¹²² Ba	(-74300)	(1015200)		(3800)	(12000)	(4400)
¹²² La	(-64500)	(1004700)		(9700)	(10200)	(1500)
¹²² Ce	(-57700)	(997100)		(6800)	(13300)	(2600)
¹²³ Ag	(-70000)	(1026000)	(7400)		(6600)	
¹²³ Cd	-77310.40	1032530.40	6120.30		(4810)	(13180)
¹²³ In	-83428.23	1037865.23	4391.23		7920.60	(10140)
¹²³ Sn	-87819.3	1041474.3	1404.3		5946.0.12	11530.50
¹²³ Sb	-89222.2.20	1042094.9.20			8969.3.23	6567.3
¹²³ Te	-89170.9.19	1041261.3.19		51.3.19	6939.4.25	8135.6.24
¹²³ I	-87929.4	1039237.4		1242.4	9931.6	4915.3
¹²³ Xe	-85253.16	1035778.16		2676.15	8150.90	6473.16
¹²³ Cs	-81053.12	1030796.12		4200.19	11004.18	3170.90
¹²³ Ba	(-75600)	(1024600)		(5500)	(9400)	(4800)
¹²³ La	(-68700)	(1016900)		(6900)	(12200)	(1700)
¹²³ Ce	(-60100)	(1007500)		(8600)	(10400)	(2800)
¹²⁴ Ag	(-66600)	(1030600)	(10100)		(4700)	
¹²⁴ Cd	-76710.60	1040000.60	4170.40		7470.70	(14000)
¹²⁴ In	-80880.50	1043380.50	7360.50		5520.50	10850.60
¹²⁴ Sn	-88236.2.14	1049962.6.14			8489.3	12098.23
¹²⁴ Sb	-87618.4.20	1048562.4.20	2905.4.15	617.9.20	6467.45.7	7089.3
¹²⁴ Te	-90523.7.15	1050685.4.15			9424.1.12	8590.5.15
¹²⁴ I	-87364.1.24	1046743.4.24	294.3	3159.6.19	7507.4	5482.2.22
¹²⁴ Xe	-87657.8.20	1046254.8.20			10476.16	7018.4
¹²⁴ Cs	-81741.11	1039555.11		5917.12	8760.15	3777.19
¹²⁴ Ba	-79094.14	1036127.14		2646.18	(11600)	5331.18
¹²⁴ La	(-70300)	(1026600)		(8800)	(9700)	(2000)
¹²⁴ Ce	(-64700)	(1020200)		(5600)	(12700)	(3300)
¹²⁴ Pr	(-53000)	(1007700)		(11700)		(200)
¹²⁵ Cd	-73320.50	1044680.50	7160.40		4680.80	(14000)
¹²⁵ In	-80480.25	1051060.25	5418.25		7670.60	11060.70
¹²⁵ Sn	-85897.9.15	1055695.6.15	2364.3		5733.0.5	12310.50
¹²⁵ Sb	-88262.3	1057277.3	766.7.21		8715.3	7314.3
¹²⁵ Te	-89028.4.19	1057261.4.19			6575.9.14	8699.0.21
¹²⁵ I	-88842.3.19	1056292.9.19		186.1.3	9549.4.23	5607.5.14
¹²⁵ Xe	-87189.8.20	1053858.0.20		1652.3	7603.3.4	7115.3
¹²⁵ Cs	-84098.9	1049984.9		3092.9	10428.14	3729.9
¹²⁵ Ba	-79540.250	1044640.250		4560.250	8510.250	5090.250
¹²⁵ La	(-73900)	(1038200)		(5600)	(11700)	(2100)
¹²⁵ Ce	(-66600)	(1030100)		(7300)	(9900)	(3600)
¹²⁵ Pr	(-57800)	(1020600)		(8800)	(12900)	(400)
¹²⁶ Cd	-72330.50	1051760.50	5490.40		7080.70	
¹²⁶ In	-77810.40	1056460.40	8210.40		5400.50	11780.60
¹²⁶ Sn	-86020.11	1063889.11	380.30		8193.11	12830.30
¹²⁶ Sb	-86400.30	1063480.30	3670.30		6210.30	7790.30
¹²⁶ Te	-90070.9.19	1066375.1.19			9113.8.4	9098.2.22
¹²⁶ I	-87916.4	1063438.4	1258.5	2155.4	7145.4	6176.4
¹²⁶ Xe	-89174.6	1063913.6			10055.7	7620.6
¹²⁶ Cs	-84348.11	1058305.11		4826.13	8322.14	4447.11
¹²⁶ Ba	-82675.14	1055850.14		1673.18	11210.250	5867.17
¹²⁶ La	(-75100)	(1047500)		(7600)	(9300)	(2900)
¹²⁶ Ce	(-70700)	(1042300)		(4400)	(12200)	(4100)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹²⁶ Pr	(-60300)	(1031100)		(10400)	(10500)	(1000)
¹²⁷ Cd	-68530 70	1056030 70	8470 60		4270 90	
¹²⁷ In	-76990 40	1063720 40	6510 30		7250 60	11960 70
¹²⁷ Sn	-83508 25	1069448 25	3201 24		5560 30	12980 50
¹²⁷ Sb	-86709 6	1071867 6	1581 5		8380 30	7978 12
¹²⁷ Te	-88290 3	1072666 3	698 4		6291 3	9180 30
¹²⁷ I	-88988 4	1072581 4			9143 3	6206 4
¹²⁷ Xe	-88325 4	1071136 4		662.3 20	7223 6	7699 3
¹²⁷ Cs	-86245 8	1068273 8		2081 8	9968 13	4360 10
¹²⁷ Ba	-82790 100	1064040 100		3450 100	8190 100	5740 100
¹²⁷ La	(-78100)	(1058560)		(4700)	(11100)	(2710)
¹²⁷ Ce	(-72000)	(1051600)		(6100)	(9300)	(4100)
¹²⁷ Pr	(-64400)	(1043300)		(7500)	(12200)	(1000)
¹²⁷ Nd	(-55400)	(1033500)		(9000)		(2500)
¹²⁸ Cd	-67300 300	1062900 300	7100 300		6800 300	
¹²⁸ In	-74360 50	1069150 50	8980 40		5440 60	13120 90
¹²⁸ Sn	-83340 30	1077350 30	1274 15		7900 40	13630 50
¹²⁸ Sb	-84610 25	1077839 25	4384 25		5970 30	8390 40
¹²⁸ Te	-88993.5 18	1081440.5 18			8775 4	9573 6
¹²⁸ I	-87742 4	1079407 4	2118 4	1251 4	6826.07 5	6741 4
¹²⁸ Xe	-89860.7 14	1080743.0 14			9607 4	8162 4
¹²⁸ Cs	-85931 5	1076031 5		3930 5	7757 9	4894 7
¹²⁸ Ba	-85409 11	1074727 11		521 12	10690 100	6454 14
¹²⁸ La	-78800 400	1067300 400		6700 400	(8700)	3300 400
¹²⁸ Ce	(-75600)	(1063300)		(3200)	(11700)	(4800)
¹²⁸ Pr	(-66300)	(1053300)		(9300)	(10000)	(1700)
¹²⁸ Nd	(-60200)	(1046400)		(6100)	(12800)	(3000)
¹²⁹ In	-72970 130	1075840 130	7660 30		6690 140	13000 300
¹²⁹ Sn	-80630 120	1082710 120	4000 120		5370 120	13560 130
¹²⁹ Sb	-84626 21	1085927 21	2380 21		8090 30	8580 30
¹²⁹ Te	-87005 3	1087524 3	1498 3		6083 3	9684 25
¹²⁹ I	-88503 3	1088239 3	194 3		8832 5	6799 3
¹²⁹ Xe	-88697.0 8	1087650.5 9			6907.6 16	8243 4
¹²⁹ Cs	-87501 5	1085673 5		1195 5	9642 7	4930 5
¹²⁹ Ba	-85068 11	1082457 11		2433 11	7730 15	6427 12
¹²⁹ La	-81350 50	1077950 50		3720 50	10700 400	3230 50
¹²⁹ Ce	(-76300)	(1072120)		(5050)	(8800)	(4800)
¹²⁹ Pr	(-70000)	(1065000)		(6300)	(11700)	(1700)
¹²⁹ Nd	(-62200)	(1056400)		(7800)	(10100)	(3100)
¹³⁰ In	-69990 50	1080930 50	10250 40		5090 130	
¹³⁰ Sn	-80240 30	1090400 30	2150 13		7680 130	14560 130
¹³⁰ Sb	-82393 25	1091765 25	4960 25		5840 30	9050 120
¹³⁰ Te	-87352.8 19	1095942.4 20			8419 3	10016 21
¹³⁰ I	-86932 3	1094740 3	2949 3	420 3	6500.33 4	7216 3
¹³⁰ Xe	-89880.9 11	1096905.8 11			9255.2 9	8666 3
¹³⁰ Cs	-86898 8	1093141 8	373 11	2983 8	7468 9	5490 8
¹³⁰ Ba	-87271 7	1092731 7			10274 11	7058 8
¹³⁰ La	(-81670)	(1086350)		(5600)	(8400)	(3890)
¹³⁰ Ce	(-79470)	(1083360)		(2200)	(11200)	(5410)
¹³⁰ Pr	(-71400)	(1074500)		(8100)	(9500)	(2400)
¹³⁰ Nd	(-66300)	(1068700)		(5000)	(12200)	(3600)
¹³⁰ Pm	(-55500)	(1057000)		(10900)		(600)
¹³¹ In	-68200 80	1087210 80	9180 30		6280 90	
¹³¹ Sn	-77380 70	1095610 70	4638 20		5210 80	14680 90
¹³¹ Sb	-82020 70	1099460 70	3190 70		7700 70	9070 80
¹³¹ Te	-85211.1 20	1101872.1 20	2233 3		5929.7 5	10107 25
¹³¹ I	-87443.9 18	1103322.5 18	970.8 6		8583 4	7380 3
¹³¹ Xe	-88414.8 16	1103511.0 17			6605.2 19	8771 4
¹³¹ Cs	-88063 5	1102377 5		352 5	9236 10	5471 6
¹³¹ Ba	-86693 7	1100225 7		1370 7	7493.5 3	7084 11
¹³¹ La	-83730 100	1096480 100		2960 100	(10130)	3750 100
¹³¹ Ce	-79700 400	1091700 400		4000 400	(8300)	(5300)
¹³¹ Pr	-74500 400	1085600 400		5250 150	(11200)	(2300)
¹³¹ Nd	-67900 500	1078300 500		6560 150	(9600)	(3800)
¹³¹ Pm	(-59800)	(1069400)		(8100)	(12400)	(800)
¹³² In	-63000 400	1090100 400	13600 400		2900 400	
¹³² Sn	-76620 30	1102920 30	3300 50		7310 80	15710 80
¹³² Sb	-79920 60	1105440 60	5290 50		5970 90	9830 90
¹³² Te	-85209 11	1109942 11	493 4		8070 12	10480 70

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹³² I	-85702 11	1109652 11	3577 11		6330 11	7780 11
¹³² Xe	-89279.4 14	1112447.0 14			8936.0 9	9124.5 11
¹³² Cs	-87160 3	1109545 3	1279.5 22	2120 3	7168 6	6034 4
¹³² Ba	-88439 3	1110042 3			9818 7	7665 6
¹³² La	-83730 40	1104550 40		4710 40	8070 110	4330 50
¹³² Ce	(-82450)	(1102490)		(1290)	(10800)	(6000)
¹³² Pr	(-75340)	(1094600)		(7100)	(8900)	(2900)
¹³² Nd	(-71600)	(1090100)		(3700)	(11800)	(4400)
¹³² Pm	(-61700)	(1079400)		(9900)	(10000)	(1100)
¹³³ Sn	-71130 100	1105490 100	7830 70		2580 110	15400 400
¹³³ Sb	-78960 80	1112540 80	4003 13		7100 90	9630 80
¹³³ Te	-82960 80	1115760 80	2920 70		5820 80	10330 90
¹³³ I	-85880 30	1117900 30	1770 30		8250 30	7960 30
¹³³ Xe	-87648 4	1118887 4	427.4 24		6440 4	9235 11
¹³³ Cs	-88075 3	1118532 3			8986.8 19	6085 3
¹³³ Ba	-87558 3	1117232 3		517.4 10	7189.9 4	7687.0 22
¹³³ La	-85330 200	1114220 200		2230 200	9670 200	4180 200
¹³³ Ce	(-82390)	(1110500)		(2900)	(8000)	(5950)
¹³³ Pr	(-78060)	(1105390)		(4300)	(10800)	(2900)
¹³³ Nd	(-72500)	(1099000)		(5600)	(8900)	(4400)
¹³³ Pm	(-65500)	(1091200)		(7000)	(11800)	(1100)
¹³³ Sm	(-57100)	(1082100)		(8400)		(2700)
¹³⁴ Sn	(-67200)	(1109700)	(6800)		(4200)	
¹³⁴ Sb	-73980 160	1115630 160	8420 110		3090 170	10140 190
¹³⁴ Te	-82390 110	1123270 110	1560 90		7510 130	10730 130
¹³⁴ I	-83950 60	1124050 60	4170 60		6150 70	8280 100
¹³⁴ Xe	-88124.4 8	1127434.6 9			8548 4	9540 30
¹³⁴ Cs	-86896 3	1125423 3	2058.7 4	1229 3	6891.540 10	6536.5 24
¹³⁴ Ba	-88954 3	1126700 3			9467.7 11	8167.9 4
¹³⁴ La	-85240 30	1122200 30		3710 30	7980 200	4970 30
¹³⁴ Ce	-84740 200	1120920 200		500 200	(10400)	6700 300
¹³⁴ Pr	(-78530)	(1113930)		(6200)	(8500)	(3400)
¹³⁴ Nd	(-75760)	(1110380)		2770 150	(11400)	(5000)
¹³⁴ Pm	(-66900)	(1100700)		(8900)	(9500)	(1700)
¹³⁴ Sm	(-61500)	(1094500)		(5400)	(12500)	(3300)
¹³⁵ Sb	-69710 110	1119430 110	8120 50		3800 190	(9800)
¹³⁵ Te	-77830 90	1126770 90	5960 90		3500 140	11140 180
¹³⁵ I	-83787 23	1131951 23	2648 24		7900 60	8680 110
¹³⁵ Xe	-86435 10	1133817 10	1151 10		6382 10	9770 60
¹³⁵ Cs	-87586 3	1134186 3	268.6 11		8762.0 10	6751 3
¹³⁵ Ba	-87855 3	1133672 3			6971.97 12	8248.3 4
¹³⁵ La	-86655 10	1131689 10		1200 10	9490 30	4990 10
¹³⁵ Ce	-84629 11	1128882 11		2026 5	7960 200	6680 30
¹³⁵ Pr	-80910 150	1124380 150		3720 150	(10450)	3460 250
¹³⁵ Nd	(-76160)	(1118850)		(4750)	(8500)	(4900)
¹³⁵ Pm	(-70100)	(1112000)		(6000)	(11300)	(1700)
¹³⁵ Sm	(-63000)	(1104100)		(7100)	(9600)	(3400)
¹³⁵ Eu	(-54300)	(1094600)		(8700)		(100)
¹³⁶ Sb	(-65100)	(1122900)	(9300)		(3500)	
¹³⁶ Te	-74420 50	1131440 50	5070 60		4670 100	12010 110
¹³⁶ I	-79500 50	1135730 50	6930 50		3780 50	8960 100
¹³⁶ Xe	-86424 7	1141877 7			8060 12	9926 23
¹³⁶ Cs	-86343 4	1141014 4	2548.2 19	81 8	6828.1 21	7197 10
¹³⁶ Ba	-88891 3	1142780 3			9107.74 4	8594.0 11
¹³⁶ La	-86020 70	1139130 70	470 80	2870 70	7440 70	5460 70
¹³⁶ Ce	-86490 50	1138820 50			9940 50	7130 50
¹³⁶ Pr	-81370 50	1132910 50		5126 18	8530 160	4030 50
¹³⁶ Nd	-79160 60	1129920 60		2211 25	(11070)	5540 160
¹³⁶ Pm	-71310 210	1121280 210		7850 200	(9200)	(2400)
¹³⁶ Sm	(-66800)	(1116000)		(4500)	(11800)	(3900)
¹³⁶ Eu	(-56400)	(1104800)		(10400)	(10100)	(600)
¹³⁷ Te	-69560 120	1134650 120	6940 120		3210 130	(11800)
¹³⁷ I	-76500 30	1140810 30	5880 30		5070 60	9370 60
¹³⁷ Xe	-82378 7	1145902 7	4172 7		4025.5 3	10170 50
¹³⁷ Cs	-86550 3	1149292 3	1175.63 17		8278.3 19	7415 7
¹³⁷ Ba	-87726 3	1149685 3			6905.76 3	8671.6 19
¹³⁷ La	-87130 50	1148300 50		600 50	9180 80	5520 50
¹³⁷ Ce	-85900 50	1146300 50		1222.1 16	7480.7 4	7170 80
¹³⁷ Pr	-83200 50	1142810 50		2702 10	9905 21	3996 10
¹³⁷ Nd	-79510 70	1138340 70		3690 50	8430 60	5430 60

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹³⁷ Pm	(-73930)	(1131980)		(5580)	(10700)	(2060)
¹³⁷ Sm	(-67900)	(1125100)		(6100)	(9200)	(3900)
¹³⁷ Eu	(-60400)	(1116800)		(7500)	(12100)	(900)
¹³⁷ Gd	(-51600)	(1107300)		(8800)		(2500)
¹³⁸ Te	(-65930)	(1139090)	(6370)		(4440)	
¹³⁸ I	-72300 <i>80</i>	1144680 <i>80</i>	7820 <i>70</i>		3870 <i>80</i>	10030 <i>150</i>
¹³⁸ Xe	-80120 <i>40</i>	1151710 <i>40</i>	2770 <i>40</i>		5810 <i>40</i>	10910 <i>50</i>
¹³⁸ Cs	-82893 <i>10</i>	1153706 <i>10</i>	5373 <i>9</i>		4414 <i>9</i>	7804 <i>12</i>
¹³⁸ Ba	-88266 <i>3</i>	1158297 <i>3</i>			8611.72 <i>4</i>	9005.00 <i>17</i>
¹³⁸ La	-86529 <i>4</i>	1155777 <i>4</i>	1044 <i>11</i>	1737 <i>4</i>	7470 <i>50</i>	6092 <i>4</i>
¹³⁸ Ce	-87573 <i>11</i>	1156039 <i>11</i>			9740 <i>50</i>	7740 <i>50</i>
¹³⁸ Pr	-83136 <i>15</i>	1150820 <i>15</i>		4437 <i>10</i>	8010 <i>50</i>	4520 <i>50</i>
¹³⁸ Nd	(-82040)	(1148940)		(1100)	(10600)	(6120)
¹³⁸ Pm	(-75100)	(1141300)		6900 <i>400</i>	(9300)	(2900)
¹³⁸ Sm	(-71200)	(1136600)		(3900)	(11400)	(4600)
¹³⁸ Eu	(-62000)	(1126500)		(9200)	(9700)	(1400)
¹³⁸ Gd	(-55900)	(1119700)		(6100)	(12400)	(2900)
¹³⁹ I	-68840 <i>30</i>	1149290 <i>30</i>	6806 <i>23</i>		4610 <i>90</i>	(10200)
¹³⁹ Xe	-75649 <i>21</i>	1155315 <i>21</i>	5057 <i>21</i>		3600 <i>40</i>	10640 <i>80</i>
¹³⁹ Cs	-80706 <i>4</i>	1159590 <i>4</i>	4213 <i>3</i>		5884 <i>10</i>	7880 <i>40</i>
¹³⁹ Ba	-84918 <i>3</i>	1163020 <i>3</i>	2317 <i>3</i>		4723.43 <i>4</i>	9314 <i>9</i>
¹³⁹ La	-87235 <i>3</i>	1164555 <i>3</i>			8778 <i>3</i>	6258 <i>3</i>
¹³⁹ Ce	-86957 <i>8</i>	1163495 <i>8</i>		278 <i>7</i>	7456 <i>12</i>	7718 <i>7</i>
¹³⁹ Pr	-84828 <i>8</i>	1160583 <i>8</i>		2129 <i>3</i>	9764 <i>16</i>	4544 <i>13</i>
¹³⁹ Nd	-82040 <i>40</i>	1157010 <i>40</i>		2790 <i>40</i>	(8080)	6190 <i>40</i>
¹³⁹ Pm	-77520 <i>50</i>	1151710 <i>50</i>		4520 <i>40</i>	(10500)	(2770)
¹³⁹ Sm	-72060 <i>120</i>	1145470 <i>120</i>		5460 <i>110</i>	(8900)	(4200)
¹³⁹ Eu	(-65400)	(1138000)		(6700)	(11500)	(1400)
¹³⁹ Gd	(-57700)	(1129500)		(7700)	(9800)	(3000)
¹³⁹ Tb	(-48400)	(1119500)		(9300)		(-200)
¹⁴⁰ I	(-64240)	(1152760)	(8760)		(3470)	
¹⁴⁰ Xe	-73000 <i>60</i>	1160740 <i>60</i>	4060 <i>60</i>		5420 <i>60</i>	11450 <i>70</i>
¹⁴⁰ Cs	-77059 <i>11</i>	1164015 <i>11</i>	6219 <i>12</i>		4425 <i>11</i>	8700 <i>23</i>
¹⁴⁰ Ba	-83278 <i>9</i>	1169451 <i>9</i>	1047 <i>8</i>		6431 <i>8</i>	9861 <i>9</i>
¹⁴⁰ La	-84325 <i>3</i>	1169716 <i>3</i>	3761.9 <i>19</i>		5160.97 <i>5</i>	6696 <i>3</i>
¹⁴⁰ Ce	-88087 <i>3</i>	1172696 <i>3</i>			9201 <i>7</i>	8140.5 <i>19</i>
¹⁴⁰ Pr	-84699 <i>7</i>	1168525 <i>7</i>		3388 <i>6</i>	7942 <i>10</i>	5031 <i>9</i>
¹⁴⁰ Nd	-84477 <i>19</i>	1167521 <i>19</i>		222 <i>20</i>	10510 <i>40</i>	6937 <i>21</i>
¹⁴⁰ Pm	-78390 <i>40</i>	1160650 <i>40</i>		6090 <i>40</i>	8940 <i>70</i>	3640 <i>60</i>
¹⁴⁰ Sm	(-75370)	(1156850)		(3020)	(11380)	(5140)
¹⁴⁰ Eu	(-67000)	(1147700)		8400 <i>400</i>	(9700)	(2200)
¹⁴⁰ Gd	(-61500)	(1141400)		(5500)	(11900)	(3400)
¹⁴⁰ Tb	(-50700)	(1129800)		(10800)	(10400)	(300)
¹⁴¹ I	(-60500)	(1157100)	(7800)		(4300)	
¹⁴¹ Xe	-68320 <i>90</i>	1164130 <i>90</i>	6150 <i>90</i>		3390 <i>110</i>	(11370)
¹⁴¹ Cs	-74471 <i>12</i>	1169498 <i>12</i>	5255 <i>12</i>		5483 <i>15</i>	8760 <i>60</i>
¹⁴¹ Ba	-79726 <i>10</i>	1173971 <i>10</i>	3216 <i>10</i>		4520 <i>12</i>	9956 <i>14</i>
¹⁴¹ La	-82942 <i>5</i>	1176405 <i>5</i>	2502 <i>4</i>		6688 <i>4</i>	6953 <i>9</i>
¹⁴¹ Ce	-85444 <i>3</i>	1178124 <i>3</i>	580.7 <i>11</i>		5428.6 <i>7</i>	8408.2 <i>20</i>
¹⁴¹ Pr	-86025 <i>3</i>	1177923 <i>3</i>			9397 <i>6</i>	5227.0 <i>12</i>
¹⁴¹ Nd	-84202 <i>4</i>	1175317 <i>4</i>		1823 <i>3</i>	7797 <i>19</i>	6792 <i>7</i>
¹⁴¹ Pm	-80487 <i>24</i>	1170820 <i>24</i>		3715 <i>24</i>	10170 <i>50</i>	3300 <i>30</i>
¹⁴¹ Sm	-75944 <i>12</i>	1165495 <i>12</i>		4543 <i>23</i>	(8650)	4840 <i>40</i>
¹⁴¹ Eu	-70390 <i>100</i>	1159160 <i>100</i>		5550 <i>100</i>	(11500)	(2320)
¹⁴¹ Gd	(-63100)	(1151100)		(7200)	(9700)	(3500)
¹⁴¹ Tb	(-54800)	(1142000)		(8300)	(12200)	(600)
¹⁴¹ Dy	(-45500)	(1131900)		(9300)		(2000)
¹⁴² Xe	-65480 <i>100</i>	1169360 <i>100</i>	5040 <i>100</i>		5230 <i>140</i>	(12300)
¹⁴² Cs	-70518 <i>13</i>	1173617 <i>13</i>	7306 <i>12</i>		4119 <i>15</i>	9490 <i>90</i>
¹⁴² Ba	-77825 <i>7</i>	1180141 <i>7</i>	2212 <i>5</i>		6170 <i>12</i>	10643 <i>13</i>
¹⁴² La	-80037 <i>6</i>	1181571 <i>6</i>	4505 <i>5</i>		5166 <i>7</i>	7600 <i>11</i>
¹⁴² Ce	-84542 <i>3</i>	1185293 <i>4</i>			7168.9 <i>25</i>	8889 <i>5</i>
¹⁴² Pr	-83797 <i>3</i>	1183766 <i>3</i>	2162.3 <i>15</i>	745.2 <i>24</i>	5843.06 <i>10</i>	5641.4 <i>11</i>
¹⁴² Nd	-85959 <i>3</i>	1185146 <i>3</i>			9828 <i>3</i>	7223.0 <i>15</i>
¹⁴² Pm	-81090 <i>40</i>	1179490 <i>40</i>		4870 <i>40</i>	8670 <i>50</i>	4170 <i>40</i>
¹⁴² Sm	-78987 <i>15</i>	1176609 <i>15</i>		2100 <i>50</i>	11115 <i>19</i>	5790 <i>30</i>
¹⁴² Eu	-71630 <i>100</i>	1168470 <i>100</i>		7360 <i>90</i>	9300 <i>140</i>	2970 <i>100</i>
¹⁴² Gd	(-67100)	(1163200)		(4500)	(12100)	(4000)
¹⁴² Tb	(-57100)	(1152300)		(10100)	(10300)	(1200)
¹⁴² Dy	(-50200)	(1144700)		(6900)	(12800)	(2600)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁴³ Xe	(-60400)	(1172350)	(7310)		(2990)	
¹⁴³ Cs	-67705 19	1178875 19	6243 18		5258 19	9520 100
¹⁴³ Ba	-73948 13	1184335 13	4243 17		4194 14	10718 17
¹⁴³ La	-78191 15	1187796 15	3425 15		6226 16	7655 16
¹⁴³ Ce	-81616 3	1190438 3	1461.6 18		5145.1 3	8868 5
¹⁴³ Pr	-83077 3	1191118 3	934.0 14		7351.9 19	5824.3 18
¹⁴³ Nd	-84011 3	1191269 3			6123.59 13	7503.5 15
¹⁴³ Pm	-82970 4	1189445 4		1041.4 24	9960 40	4299.8 24
¹⁴³ Sm	-79527 4	1185220 4		3443 4	8611 15	5730 40
¹⁴³ Eu	-74360 40	1179270 40		5170 40	10800 100	2660 40
¹⁴³ Gd	-68350 200	1172480 200		6010 200	(9300)	4010 220
¹⁴³ Tb	(-61000)	(1164300)		(7400)	(12000)	(1100)
¹⁴³ Dy	(-52200)	(1154800)		(8800)	(10100)	(2400)
¹⁴³ Ho	(-42200)	(1143900)		(10000)		(-700)
¹⁴⁴ Xe	(-57300)	(1177300)	(6100)		(4900)	
¹⁴⁴ Cs	-63316 25	1182557 25	8465 24		3682 23	(10210)
¹⁴⁴ Ba	-71780 14	1190239 14	3120 60		5904 18	11364 21
¹⁴⁴ La	-74900 60	1192580 60	5540 60		4780 60	8240 60
¹⁴⁴ Ce	-80441 4	1197335 4	318.7 8		6896 3	9539 15
¹⁴⁴ Pr	-80759 4	1196871 4	2997.5 24		5753 3	6433 3
¹⁴⁴ Nd	-83757 3	1199086 3			7817.02 7	7968.7 14
¹⁴⁴ Pm	-81425 4	1195972 4	550 3	2331.8 22	6526.7 15	4702.9 22
¹⁴⁴ Sm	-81975 3	1195740 3			10519.8 24	6295 3
¹⁴⁴ Eu	-75647 21	1188629 21		6329 21	9360 40	3409 21
¹⁴⁴ Gd	(-71910)	(1184110)		(3740)	(11600)	(4840)
¹⁴⁴ Tb	(-63000)	(1174400)		(8900)	(10100)	(1900)
¹⁴⁴ Dy	(-56800)	(1167400)		(6200)	(12600)	(3100)
¹⁴⁴ Ho	(-45000)	(1154900)		(11800)	(10900)	(100)
¹⁴⁵ Cs	-60160 40	1187480 40	7890 40		4920 30	(10200)
¹⁴⁵ Ba	-68050 50	1194580 50	4930 60		4340 50	12020 50
¹⁴⁵ La	-72980 70	1198730 70	4120 60		6150 90	8490 70
¹⁴⁵ Ce	-77100 40	1202060 40	2540 40		4730 40	9490 70
¹⁴⁵ Pr	-79636 8	1203819 8	1805 7		6948 7	6484 8
¹⁴⁵ Nd	-81441 3	1204842 3			5755.5 6	7970.6 25
¹⁴⁵ Pm	-81278 4	1203896 4		163.2 22	7924.0 15	4809.9 22
¹⁴⁵ Sm	-80661 3	1202497 3		616.7 24	6757.1 3	6525 3
¹⁴⁵ Eu	-78001 4	1199055 4		2660 3	10426 21	3315 3
¹⁴⁵ Gd	-72950 40	1193220 40		5050 40	(9110)	4590 40
¹⁴⁵ Tb	-66440 130	1185930 130		6510 120	(11500)	(1820)
¹⁴⁵ Dy	(-58720)	(1177430)		(7720)	(10000)	(3000)
¹⁴⁵ Ho	(-49600)	(1167500)		(9100)	(12700)	(100)
¹⁴⁵ Er	(-39300)	(1156400)		(10300)		(1600)
¹⁴⁶ Cs	-55660 70	1191050 70	9380 40		3570 50	
¹⁴⁶ Ba	-65040 70	1199640 70	4120 40		5060 70	12160 50
¹⁴⁶ La	-69160 70	1202980 70	6550 50		4250 90	8400 70
¹⁴⁶ Ce	-75700 60	1208740 60	1040 40		6680 70	10010 90
¹⁴⁶ Pr	-76740 60	1208990 60	4200 60		5170 60	6930 70
¹⁴⁶ Nd	-80935 3	1212407 3			7565.25 14	8588 7
¹⁴⁶ Pm	-79463 5	1210153 5	1542 3	1472 4	6257 5	5311 4
¹⁴⁶ Sm	-81005 4	1210912 4			8415 3	7016 3
¹⁴⁶ Eu	-77127 7	1206252 7		3878 6	7198 7	3755 7
¹⁴⁶ Gd	-76097 5	1204440 5		1030 8	11220 40	5385 5
¹⁴⁶ Tb	-68020 110	1195580 110		8080 110	9650 160	2360 110
¹⁴⁶ Dy	-62860 150	1189640 150		5160 100	(12200)	3710 190
¹⁴⁶ Ho	(-52200)	(1178200)		(10700)	(10600)	(800)
¹⁴⁶ Er	(-44800)	(1170000)		(7400)	(13600)	(2400)
¹⁴⁶ Tm	(-30800)	(1155300)		(13900)		-1128 10
¹⁴⁷ Cs	-52230 100	1195690 100	9250 140		4640 90	
¹⁴⁷ Ba	-61490 90	1204160 90	5750 50		4520 110	13110 110
¹⁴⁷ La	-67240 80	1209130 80	4950 60		6150 100	9490 100
¹⁴⁷ Ce	-72180 50	1213290 50	3290 40		4550 80	10310 90
¹⁴⁷ Pr	-75470 40	1215800 40	2690 40		6800 70	7060 70
¹⁴⁷ Nd	-78156 3	1217699 3	896.1 9		5292.07 15	8710 60
¹⁴⁷ Pm	-79052 3	1217813 3	224.1 3		7660 4	5405.8 9
¹⁴⁷ Sm	-79276 3	1217255 3			6342 3	7102 4
¹⁴⁷ Eu	-77554 4	1214751 4		1721.5 23	8499 7	3838 4
¹⁴⁷ Gd	-75367 4	1211781 4		2188 3	7341 4	5529 7
¹⁴⁷ Tb	-70755 12	1206387 12		4611 12	10800 110	1947 12
¹⁴⁷ Dy	-64380 50	1199230 50		6370 50	9590 160	3650 120
¹⁴⁷ Ho	(-56200)	(1190300)		(8100)	(12100)	(700)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁴⁷ Er	(-47100)	(1180400)		(9100)	(10400)	(2200)
¹⁴⁷ Tm	(-36400)	(1168900)		(10700)	(13600)	-1061.5
¹⁴⁸ Cs	-47500.400	1199000.400	10500.400		3400.400	
¹⁴⁸ Ba	-58050.140	1208790.140	5120.60		4630.170	13110.170
¹⁴⁸ La	-63160.130	1213120.130	7260.50		4000.150	8970.160
¹⁴⁸ Ce	-70430.120	1219600.120	2060.210		6320.130	10480.140
¹⁴⁸ Pr	-72490.220	1220880.220	4930.220		5090.220	7590.230
¹⁴⁸ Nd	-77417.3	1225032.3			7332.9.16	9240.40
¹⁴⁸ Pm	-76878.7	1223710.7	2468.6	539.6	5897.6	6011.6
¹⁴⁸ Sm	-79346.3	1225396.3			8141.5.6	7583.3.7
¹⁴⁸ Eu	-76239.18	1221506.18	40.17	3107.17	6756.17	4252.17
¹⁴⁸ Gd	-76279.3	1220764.3			8983.8.14	6014.3
¹⁴⁸ Tb	-70590.30	1214290.30		5690.30	7900.30	2510.30
¹⁴⁸ Dy	-67910.30	1210830.30		2678.10	11600.60	4440.30
¹⁴⁸ Ho	(-58500)	(1200600)		(9400)	(10300)	(1400)
¹⁴⁸ Er	(-51800)	(1193100)		(6800)	(12700)	(2800)
¹⁴⁸ Tm	(-39800)	(1180300)		(12000)	(11400)	(-100)
¹⁴⁸ Yb	(-30500)	(1170300)		(9300)		(1400)
¹⁴⁹ Cs	(-44200)	(1203800)	(9800)		(4800)	
¹⁴⁹ Ba	(-54000)	(1212800)	(7300)		(4000)	(13700)
¹⁴⁹ La	(-61300)	(1219300)	(5500)		(6200)	(10500)
¹⁴⁹ Ce	-66800.80	1224050.80	4190.80		4440.140	10920.150
¹⁴⁹ Pr	-70988.11	1227456.11	3397.10		6570.220	7850.120
¹⁴⁹ Nd	-74385.3	1230071.3	1691.3		5038.68.10	9190.220
¹⁴⁹ Pm	-76075.4	1230979.4	1071.4		7269.7	5947.3
¹⁴⁹ Sm	-77146.3	1231268.3			5871.6.9	7557.6
¹⁴⁹ Eu	-76454.5	1229793.5		692.5	8287.18	4397.5
¹⁴⁹ Gd	-75135.5	1227691.5		1319.6	6927.3	6185.18
¹⁴⁹ Tb	-71499.5	1223273.5		3636.5	8980.30	2508.4
¹⁴⁹ Dy	-67687.11	1218679.11		3812.10	7850.30	4390.30
¹⁴⁹ Ho	-61673.22	1211883.22		6014.19	(11200)	1050.40
¹⁴⁹ Er	(-53900)	(1203400)		(7700)	(10300)	(2700)
¹⁴⁹ Tm	(-44400)	(1193000)		(9600)	(12700)	(-100)
¹⁴⁹ Yb	(-33700)	(1181500)		(10700)	(11300)	(1200)
¹⁵⁰ Ba	(-50700)	(1217600)	(6400)		(4800)	(13800)
¹⁵⁰ La	(-57200)	(1223300)	(7800)		(3900)	(10500)
¹⁵⁰ Ce	-64990.120	1230320.120	3010.90		6270.140	(11000)
¹⁵⁰ Pr	-68000.80	1232540.80	5690.80		5090.80	8490.110
¹⁵⁰ Nd	-73693.4	1237451.4			7380.3	9994.10
¹⁵⁰ Pm	-73607.20	1236582.20	3454.20	86.20	5603.20	6511.20
¹⁵⁰ Sm	-77061.3	1239253.3			7985.7.7	8274.4
¹⁵⁰ Eu	-74800.7	1236210.7	971.4	2261.6	6417.8	4943.6
¹⁵⁰ Gd	-75771.7	1236399.7			8708.7	6606.8
¹⁵⁰ Tb	-71115.8	1230960.8		4656.9	7688.9	3269.8
¹⁵⁰ Dy	-69321.5	1228384.5		1794.9	9706.11	5111.6
¹⁵⁰ Ho	(-62080)	(1220360)		(7240)	(8480)	(1680)
¹⁵⁰ Er	(-57970)	(1215470)		4108.15	(12100)	(3590)
¹⁵⁰ Tm	(-47100)	(1203900)		(10800)	(10800)	(500)
¹⁵⁰ Yb	(-39000)	(1194900)		(8100)	(13400)	(1900)
¹⁵⁰ Lu	(-25100)	(1180300)		(13900)		-1270.4
¹⁵¹ La	(-54600)	(1228800)	(6800)		(5600)	(11200)
¹⁵¹ Ce	(-61500)	(1234900)	(5300)		(4500)	(11600)
¹⁵¹ Pr	-66790.80	1239400.80	4170.80		6850.110	9080.140
¹⁵¹ Nd	-70956.4	1242785.4	2442.4		5334.43.20	10240.80
¹⁵¹ Pm	-73399.6	1244445.6	1187.5		7863.21	6995.4
¹⁵¹ Sm	-74586.3	1244850.3	76.8.5		5596.44.10	8268.20
¹⁵¹ Eu	-74663.3	1244144.3			7934.6	4890.8.5
¹⁵¹ Gd	-74199.4	1242898.4		464.3	6499.7	6687.7
¹⁵¹ Tb	-71633.5	1239550.5		2565.4	8590.9	3151.7
¹⁵¹ Dy	-68762.4	1235897.4		2871.5	7513.5	4936.8
¹⁵¹ Ho	-63635.12	1229987.12		5128.12	(9630)	1603.12
¹⁵¹ Er	(-58400)	(1224000)		(5200)	(8500)	(3600)
¹⁵¹ Tm	(-50900)	(1215700)		(7530)	(11800)	(200)
¹⁵¹ Yb	(-41700)	(1205700)		(9200)	(10700)	(1800)
¹⁵¹ Lu	(-30700)	(1193900)		(11000)	(13600)	(-1040)
¹⁵² Ce	(-59000)	(1240500)	(4400)		(5700)	(11700)
¹⁵² Pr	(-63500)	(1244100)	(6700)		(4700)	(9300)
¹⁵² Nd	-70160.30	1250060.30	1110.80		7270.30	10660.80
¹⁵² Pm	-71270.70	1250390.70	3500.70		5940.70	7600.70
¹⁵² Sm	-74772.3	1253107.3			8257.6.7	8662.5

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁵² Eu	-72898 3	1250451 3	1818.2 11	1874.1 7	6306.72 10	5601.1 5
¹⁵² Gd	-74716 3	1251487 3			8589 3	7342.5 11
¹⁵² Tb	-70730 40	1246710 40		3990 40	7160 40	3820 40
¹⁵² Dy	-70128 6	1245333 6		600 40	9437 5	5783 6
¹⁵² Ho	-63650 30	1238080 30		6470 30	8090 30	2180 30
¹⁵² Er	-60550 30	1234190 30		3105 10	(10200)	4200 30
¹⁵² Tm	(-51900)	(1224700)		(8700)	(9100)	(800)
¹⁵² Yb	(-46400)	(1218500)		5470 200	(12800)	(2800)
¹⁵² Lu	(-34100)	(1205400)		(12300)	(11500)	(-300)
¹⁵³ Ce	(-55000)	(1244500)	(6500)		(4000)	
¹⁵³ Pr	(-61500)	(1250300)	(5500)		(6200)	(9800)
¹⁵³ Nd	(-67070)	(1255040)	(3600)		(4980)	(10900)
¹⁵³ Pm	-70668 16	1257857 16	1900 16		7470 70	7800 30
¹⁵³ Sm	-72569 3	1258975 3	808.4 8		5867.73 23	8590 70
¹⁵³ Eu	-73377 3	1259001 3			8550.28 12	5893.8 7
¹⁵³ Gd	-72892 3	1257734 3		484.8 11	6247.3 3	7283.1 11
¹⁵³ Tb	-71322 5	1255381 5		1570 4	8670 40	3895 4
¹⁵³ Dy	-69151 5	1252428 5		2170.6 19	7095 6	5710 40
¹⁵³ Ho	-65023 7	1247517 7		4129 7	9440 30	2184 8
¹⁵³ Er	-60459 11	1242172 11		4564 11	7980 30	4090 30
¹⁵³ Tm	-54000 22	1234930 22		6459 19	(10200)	740 40
¹⁵³ Yb	(-47300)	(1227500)		(6700)	(9000)	(2700)
¹⁵³ Lu	(-38500)	(1217800)		(8800)	(12500)	(-700)
¹⁵⁴ Pr	(-57700)	(1254500)	(7900)		(4200)	(10000)
¹⁵⁴ Nd	(-65600)	(1261700)	(2800)		(6600)	(11400)
¹⁵⁴ Pm	-68410 110	1263670 110	4050 110		5810 110	(8630)
¹⁵⁴ Sm	-72465 3	1266943 3			7967.6 9	9086 16
¹⁵⁴ Eu	-71748 3	1265443 3	1968.5 11	717.1 11	6442.0 3	6468.1 8
¹⁵⁴ Gd	-73716 3	1266629 3			8895.3 3	7628.1 11
¹⁵⁴ Tb	-70150 50	1262290 50	250 50	3560 50	6900 50	4550 50
¹⁵⁴ Dy	-70400 9	1261748 9			9320 9	6367 9
¹⁵⁴ Ho	-64648 9	1255214 9		5751 11	7697 11	2786 9
¹⁵⁴ Er	-62617 6	1252400 6		2032 10	10229 12	4883 8
¹⁵⁴ Tm	(-54560)	(1243560)		(8050)	(8630)	(1390)
¹⁵⁴ Yb	(-50070)	(1238290)		4490 50	(10800)	(3360)
¹⁵⁴ Lu	(-40000)	(1227400)		(10100)	(9600)	(-100)
¹⁵⁴ Hf	(-33300)	(1220000)		(6700)		(2100)
¹⁵⁵ Pr	(-55300)	(1260200)	(6700)		(5700)	
¹⁵⁵ Nd	(-62000)	(1266100)	(5000)		(4500)	(11600)
¹⁵⁵ Pm	(-67030)	(1270360)	(3170)		(6690)	(8700)
¹⁵⁵ Sm	-70201 3	1272750 3	1627.1 12		5807.2 3	9080 110
¹⁵⁵ Eu	-71828 3	1273595 3	252.2 11		8151.4 4	6651.9 11
¹⁵⁵ Gd	-72080 3	1273064 3			6435.1 3	7621.3 11
¹⁵⁵ Tb	-71259 12	1271461 12		821 12	9180 50	4832 12
¹⁵⁵ Dy	-69164 12	1268584 12		2094.5 19	6836 14	6300 50
¹⁵⁵ Ho	-66062 23	1264700 23		3102 20	9485 25	2952 25
¹⁵⁵ Er	-62220 50	1260070 50		3840 60	7670 50	4860 50
¹⁵⁵ Tm	-56640 14	1253713 14		5580 50	(10150)	1313 14
¹⁵⁵ Yb	(-50700)	(1246900)		(6000)	(8700)	(3400)
¹⁵⁵ Lu	(-42700)	(1238200)		(7970)	(10800)	(-100)
¹⁵⁵ Hf	(-34700)	(1229400)		(8000)	(9500)	(2000)
¹⁵⁶ Nd	(-60100)	(1272300)	(4100)		(6200)	(12100)
¹⁵⁶ Pm	-64220 40	1275620 40	5160 40		(5260)	(9500)
¹⁵⁶ Sm	-69372 10	1279992 10	722 8		7242 9	(9630)
¹⁵⁶ Eu	-70094 6	1279932 6	2451 5		6338 5	7182 5
¹⁵⁶ Gd	-72545 3	1281601 3			8536.37 12	8006.3 11
¹⁵⁶ Tb	-70101 5	1278374 5	434 7	2444 4	6913 12	5310 4
¹⁵⁶ Dy	-70534 7	1278025 7			9441 10	6564 10
¹⁵⁶ Ho	(-65470)	(1272180)		(5060)	(7480)	(3600)
¹⁵⁶ Er	(-64100)	(1270030)		(1370)	(10000)	(5330)
¹⁵⁶ Tm	-56890 60	1262030 60		(7200)	8320 60	1960 80
¹⁵⁶ Yb	-53310 30	1257670 30		3570 50	(10700)	3960 40
¹⁵⁶ Lu	(-43900)	(1247400)		(9400)	(9300)	(500)
¹⁵⁶ Hf	(-38000)	(1240800)		5910 200	(11300)	(2600)
¹⁵⁶ Ta	(-26400)	(1228400)		(11600)		-1029 13
¹⁵⁷ Nd	(-56100)	(1276300)	(6200)		(4000)	
¹⁵⁷ Pm	(-62200)	(1281700)	(4500)		(6100)	(9400)
¹⁵⁷ Sm	-66770 200	1285460 200	2700 200		5470 200	9840 200
¹⁵⁷ Eu	-69471 6	1287381 6	1363 6		7449 8	7389 11
¹⁵⁷ Gd	-70834 3	1287961 3			6360.05 15	8029 5

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁵⁷ Tb	-70774.3	1287119.3		60.1.3	8744.4	5517.6.3
¹⁵⁷ Dy	-69432.7	1284995.7		1341.6	6969.6	6621.7
¹⁵⁷ Ho	-66890.50	1281670.50		2540.50	(9490)	3650.50
¹⁵⁷ Er	-63420.90	1277420.90		3470.80	(7400)	(5240)
¹⁵⁷ Tm	-58940.140	1272160.140		4480.100	10130.150	(2100)
¹⁵⁷ Yb	-53410.50	1265840.50		5530.150	8170.60	3820.80
¹⁵⁷ Lu	-46479.22	1258130.22		6930.50	(10700)	460.40
¹⁵⁷ Hf	(-39000)	(1249900)		(7500)	(9100)	(2400)
¹⁵⁷ Ta	(-29700)	(1239800)		(9300)	(11400)	(-1000)
¹⁵⁸ Pm	(-59000)	(1286500)	(6300)		(4800)	(10200)
¹⁵⁸ Sm	(-65270)	(1292030)	(1950)		(6600)	(10300)
¹⁵⁸ Eu	-67210.80	1293200.80	3490.80		5810.80	7730.210
¹⁵⁸ Gd	-70700.3	1295898.3			7937.33.12	8518.6
¹⁵⁸ Tb	-69480.3	1293896.3	936.8.24	1220.0.9	6777.4.9	5935.0.9
¹⁵⁸ Dy	-70417.4	1294050.4			9056.6	6931.8.24
¹⁵⁸ Ho	-66180.30	1289030.30		4240.30	7360.60	4040.30
¹⁵⁸ Er	(-65280)	(1287350)		(900)	(9930)	(5680)
¹⁵⁸ Tm	(-58750)	(1280040)		6530.100	(7880)	(2620)
¹⁵⁸ Yb	-56021.10	1276525.10		(2730)	10680.50	4370.140
¹⁵⁸ Lu	(-47350)	(1267070)		(8670)	(8940)	(1230)
¹⁵⁸ Hf	(-42250)	(1261190)		5100.70	(11300)	(3060)
¹⁵⁸ Ta	(-31300)	(1249500)		(10900)	(9700)	(-400)
¹⁵⁸ W	(-24300)	(1241700)		(7100)		(1900)
¹⁵⁹ Pm	(-56500)	(1292200)	(5700)		(5600)	
¹⁵⁹ Sm	(-62200)	(1297100)	(3800)		(5000)	(10500)
¹⁵⁹ Eu	-66057.8	1300109.8	2514.7		6910.80	(8080)
¹⁵⁹ Gd	-68572.3	1301842.3	970.6.7		5943.29.15	8650.80
¹⁵⁹ Tb	-69542.3	1302030.3			8133.9.5	6131.5.7
¹⁵⁹ Dy	-69177.3	1300882.3		365.6.12	6831.5.24	6985.9.13
¹⁵⁹ Ho	-67339.4	1298262.4		1838.3	9230.30	4212.4
¹⁵⁹ Er	-64571.5	1294711.5		2768.5.20	(7360)	5680.30
¹⁵⁹ Tm	-60720.100	1290080.100		3850.100	(10040)	(2730)
¹⁵⁹ Yb	-55670.220	1284250.220		5050.200	7720.220	(4200)
¹⁵⁹ Lu	-49680.50	1277480.50		5990.230	(10410)	950.50
¹⁵⁹ Hf	(-43000)	(1270000)		(6700)	(8800)	(2900)
¹⁵⁹ Ta	(-34500)	(1260700)		(8490)	(11300)	(-400)
¹⁵⁹ W	(-25800)	(1251300)		(8700)	(9600)	(1800)
¹⁶⁰ Sm	(-60300)	(1303200)	(3100)		(6100)	(11000)
¹⁶⁰ Eu	(-63370)	(1305500)	(4580)		(5390)	(8400)
¹⁶⁰ Gd	-67952.3	1309293.3			7451.4.7	9184.7
¹⁶⁰ Tb	-67846.3	1308405.3	1835.3.13	105.6.10	6375.2.3	6563.4.8
¹⁶⁰ Dy	-69682.3	1309458.3			8576.1.14	7428.2.13
¹⁶⁰ Ho	-66390.11	1305384.11		3292.11	7122.11	4502.11
¹⁶⁰ Er	-66060.50	1304270.50		330.50	9560.50	6010.50
¹⁶⁰ Tm	-60170.110	1297600.110		5890.100	7520.150	2890.110
¹⁶⁰ Yb	(-58160)	(1294810)		(2010)	(10600)	(4730)
¹⁶⁰ Lu	(-50280)	(1286150)		(7880)	(8670)	(1900)
¹⁶⁰ Hf	-45980.30	1281070.30		(4300)	(11100)	3590.60
¹⁶⁰ Ta	(-35900)	(1270200)		(10100)	(9500)	(200)
¹⁶⁰ W	(-29500)	(1263000)		6430.210	(11700)	(2200)
¹⁶⁰ Re	(-17200)	(1250000)		(12200)		-1290.50
¹⁶¹ Sm	(-56800)	(1307800)	(5000)		(4600)	
¹⁶¹ Eu	(-61800)	(1312000)	(3700)		(6500)	(8800)
¹⁶¹ Gd	-65516.3	1314928.3	1955.6.14		5635.4.10	(9430)
¹⁶¹ Tb	-67471.3	1316102.3	593.1.14		7696.6.5	6808.6.10
¹⁶¹ Dy	-68065.3	1315912.3			6454.36.9	7507.4.13
¹⁶¹ Ho	-67206.4	1314271.4		859.3	8887.11	4813.3
¹⁶¹ Er	-65203.10	1311486.10		2003.9	7210.50	6102.14
¹⁶¹ Tm	-62040.90	1307540.90		3160.90	9940.140	3270.100
¹⁶¹ Yb	(-57890)	(1302610)		(4150)	(7800)	(5010)
¹⁶¹ Lu	(-52590)	(1296530)		5300.100	(10400)	(1700)
¹⁶¹ Hf	-46270.70	1289420.70		(6320)	8350.80	(3270)
¹⁶¹ Ta	-38770.50	1281150.50		7490.90	(11000)	80.60
¹⁶¹ W	(-30700)	(1272200)		(8100)	(9300)	(2000)
¹⁶¹ Re	(-20800)	(1261600)		(9800)	(11600)	(-1400)
¹⁶² Eu	(-58600)	(1316900)	(5600)		(4900)	(9100)
¹⁶² Gd	-64290.5	1321774.5	1390.40		6846.4	(9800)
¹⁶² Tb	-65680.40	1322390.40	2510.40		6280.40	7460.40
¹⁶² Dy	-68190.3	1324109.3			8196.95.12	8007.7.14
¹⁶² Ho	-66050.4	1321187.4	295.4	2140.4	6916.4	5274.4

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁶² Er	-66346 4	1320700 4			9214 9	6429 3
¹⁶² Tm	-61540 40	1315110 40		4810 40	7570 100	3620 40
¹⁶² Yb	(-59850)	(1312640)		(1690)	(10000)	(5100)
¹⁶² Lu	(-52630)	(1304640)		(7220)	(8100)	(2000)
¹⁶² Hf	-49179 11	1300404 11		(3450)	10990 70	(3880)
¹⁶² Ta	(-39920)	(1290360)		(9260)	(9210)	(940)
¹⁶² W	(-34150)	(1283810)		5770 90	(11600)	(2660)
¹⁶² Re	(-22600)	(1271500)		(11500)	(9900)	(-700)
¹⁶² Os	(-15100)	(1263200)		(7600)		(1600)
¹⁶³ Eu	(-56500)	(1322900)	(5000)		(6000)	
¹⁶³ Gd	(-61500)	(1327000)	(3100)		(5300)	(10100)
¹⁶³ Tb	-64605 5	1329377 5	1785 4		6990 40	7603 6
¹⁶³ Dy	-66390 3	1330380 3			6270.93 7	7990 40
¹⁶³ Ho	-66387 3	1329595 3		2.576 16	8409 4	5486.00 7
¹⁶³ Er	-65177 5	1327603 5		1210 5	6903 5	6416 6
¹⁶³ Tm	-62738 6	1324381 6		2439 3	9270 40	3682 6
¹⁶³ Yb	-59370 100	1320230 100		3370 100	(7590)	5120 110
¹⁶³ Lu	-54770 220	1314850 220		4600 200	(10200)	(2200)
¹⁶³ Hf	(-49300)	(1308600)		(5500)	(8200)	(4000)
¹⁶³ Ta	-42510 70	1301020 70		(6800)	(10670)	620 70
¹⁶³ W	(-35100)	(1292800)		(7400)	(9000)	(2400)
¹⁶³ Re	(-26000)	(1283000)		(9030)	(11500)	(-800)
¹⁶³ Os	(-16700)	(1272900)		(9300)	(9700)	(1400)
¹⁶⁴ Gd	(-59700)	(1333400)	(2300)		(6300)	(10500)
¹⁶⁴ Tb	-62090 100	1334930 100	3890 100		5550 100	(7900)
¹⁶⁴ Dy	-65977 3	1338038 3			7658.08 12	8661 4
¹⁶⁴ Ho	-64990 3	1336269 3	962.5 23	986.7 22	6673.9 22	5889.0 22
¹⁶⁴ Er	-65952 3	1336449 3			8846 5	6854.0 25
¹⁶⁴ Tm	-61990 20	1331705 20		3962 20	7323 21	4102 21
¹⁶⁴ Yb	(-60990)	(1329930)		(1000)	(9700)	(5550)
¹⁶⁴ Lu	(-54740)	(1322890)		6250 90	(8000)	(2670)
¹⁶⁴ Hf	(-51770)	(1319140)		(2970)	(10500)	(4300)
¹⁶⁴ Ta	(-43200)	(1309800)		(8500)	(8800)	(1200)
¹⁶⁴ W	-38280 30	1304080 30		(5000)	(11300)	3060 80
¹⁶⁴ Re	(-27500)	(1292600)		(10700)	(9600)	(-200)
¹⁶⁴ Os	(-20600)	(1284800)		6990 210	(11900)	(1800)
¹⁶⁵ Gd	(-56500)	(1338200)	(4200)		(4800)	
¹⁶⁵ Tb	(-60700)	(1341600)	(3000)		(6600)	(8200)
¹⁶⁵ Dy	-63621 3	1343754 3	1286.2 19		5715.89 10	8820 100
¹⁶⁵ Ho	-64907 3	1344258 3			7988.8 11	6219.7 19
¹⁶⁵ Er	-64531 3	1343099 3		376.3 21	6650.0 7	6830.2 23
¹⁶⁵ Tm	-62939 4	1340724 4		1592.5 15	9020 20	4275.2 16
¹⁶⁵ Yb	-60177 20	1337180 20		2762 20	(7250)	5480 30
¹⁶⁵ Lu	-56260 80	1332480 80		3920 80	(9580)	(2550)
¹⁶⁵ Hf	(-51700)	(1327100)		(4600)	(8000)	(4200)
¹⁶⁵ Ta	(-45810)	(1320470)		(5800)	(10600)	(1300)
¹⁶⁵ W	-38810 90	1312680 90		(7010)	8600 90	(2800)
¹⁶⁵ Re	-30690 70	1303780 70		8120 110	(11200)	-300 80
¹⁶⁵ Os	(-21900)	(1294200)		(8800)	(9400)	(1700)
¹⁶⁶ Tb	(-57700)	(1346700)	(4900)		(5100)	(8500)
¹⁶⁶ Dy	-62593 3	1350798 3	486.3 19		7043.5 4	(9200)
¹⁶⁶ Ho	-63080 3	1350502 3	1854.5 9		6243.640 20	6747.5 19
¹⁶⁶ Er	-64934 3	1351574 3			8474.4 19	7315.8 9
¹⁶⁶ Tm	-61894 11	1347751 11		3040 11	7027 11	4652 11
¹⁶⁶ Yb	-61590 8	1346665 8		304 14	9485 22	5941 8
¹⁶⁶ Lu	-56110 160	1340400 160		5480 160	7930 180	3220 160
¹⁶⁶ Hf	(-53800)	(1337300)		(2300)	(10200)	(4800)
¹⁶⁶ Ta	(-46100)	(1328900)		(7700)	(8400)	(1800)
¹⁶⁶ W	-41898 12	1323843 12		(4200)	11160 90	(3370)
¹⁶⁶ Re	(-31850)	(1313020)		(10040)	(9230)	(330)
¹⁶⁶ Os	(-25590)	(1305970)		6260 100	(11700)	(2190)
¹⁶⁶ Ir	(-13500)	(1293100)		(12100)		(-1100)
¹⁶⁷ Tb	(-55800)	(1352900)	(4100)		(6200)	
¹⁶⁷ Dy	-59940 60	1356220 60	2350 60		5420 60	(9500)
¹⁶⁷ Ho	-62292 6	1357786 6	1007 5		7284 5	6988 5
¹⁶⁷ Er	-63299 3	1358010 3			6436.1 4	7508.2 10
¹⁶⁷ Tm	-62551 3	1356479 3		748.3 15	8728 11	4905.5 15
¹⁶⁷ Yb	-60596 5	1353743 5		1954 4	7077 9	5991 12
¹⁶⁷ Lu	-57470 100	1349830 100		3130 100	9430 190	3160 100
¹⁶⁷ Hf	(-53470)	(1345050)		(4000)	(7700)	(4600)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁶⁷ Ta	(-48500)	(1339300)		(5000)	(10400)	(2000)
¹⁶⁷ W	(-42200)	(1332200)		(6200)	(8400)	(3400)
¹⁶⁷ Re	(-34840)	(1324080)		(7400)	(11060)	(230)
¹⁶⁷ Os	(-26700)	(1315100)		(8200)	(9100)	(2100)
¹⁶⁷ Ir	(-17100)	(1304700)		(9600)	(11600)	(-1200)
¹⁶⁸ Dy	(-58500)	(1362800)	(1600)		(6600)	(9900)
¹⁶⁸ Ho	-60080.30	1363650.30	2910.30		5860.30	7430.70
¹⁶⁸ Er	-62999.3	1365781.3			7771.07.25	7995.5
¹⁶⁸ Tm	-61320.3	1363320.3	257.4	1679.0.19	6840.3.18	5309.7.18
¹⁶⁸ Yb	-61577.4	1362794.4			9052.5	6315.4
¹⁶⁸ Lu	-57100.80	1357540.80		4480.80	7710.130	3790.80
¹⁶⁸ Hf	(-55300)	(1354960)		(1800)	(9910)	(5130)
¹⁶⁸ Ta	(-48600)	(1347500)		(6700)	(8200)	(2500)
¹⁶⁸ W	(-44840)	(1342930)		(3800)	(10700)	(3700)
¹⁶⁸ Re	(-35800)	(1333100)		(9100)	(9000)	(800)
¹⁶⁸ Os	-30040.30	1326560.30		(5700)	(11500)	(2490)
¹⁶⁸ Ir	(-18700)	(1314500)		(11300)	(9700)	(-700)
¹⁶⁸ Pt	(-11100)	(1306100)		7570.220		(1400)
¹⁶⁹ Dy	-55600.300	1368000.300	3200.300		(5200)	
¹⁶⁹ Ho	-58806.20	1370442.20	2124.20		6790.40	(7600)
¹⁶⁹ Er	-60930.3	1371784.3	351.2.11		6003.1.3	8140.30
¹⁶⁹ Tm	-61282.3	1371353.3			8033.4.15	5572.0.11
¹⁶⁹ Yb	-60373.4	1369661.4		909.4	6867.2.3	6342.4
¹⁶⁹ Lu	-58080.5	1366586.5		2293.3	9050.80	3792.3
¹⁶⁹ Hf	-54810.80	1362530.80		3270.80	(7580)	5000.110
¹⁶⁹ Ta	(-50380)	(1357320)		(4440)	(9800)	(2360)
¹⁶⁹ W	(-44900)	(1351100)		(5400)	(8200)	(3600)
¹⁶⁹ Re	(-38350)	(1343730)		(6600)	(10700)	(800)
¹⁶⁹ Os	-30670.100	1335260.100		(7680)	8700.110	(2200)
¹⁶⁹ Ir	-21990.90	1325800.90		8680.130	(11400)	-760.100
¹⁶⁹ Pt	(-12600)	(1315700)		(9300)	(9600)	(1200)
¹⁷⁰ Ho	-56250.50	1375960.50	3870.50		5510.50	7900.300
¹⁷⁰ Er	-60118.3	1379043.3			7258.8.16	8600.20
¹⁷⁰ Tm	-59804.3	1377946.3	968.0.8	314.4.18	6593.3.11	6162.1.14
¹⁷⁰ Yb	-60772.3	1378132.3			8470.3	6778.9.12
¹⁷⁰ Lu	-57313.19	1373890.19		3459.19	7304.19	4229.19
¹⁷⁰ Hf	(-56220)	(1372010)		(1100)	(9480)	(5430)
¹⁷⁰ Ta	(-50220)	(1365230)		(6000)	(7900)	(2700)
¹⁷⁰ W	(-47200)	(1361500)		(3000)	(10400)	(4200)
¹⁷⁰ Re	(-39000)	(1352400)		(8300)	(8700)	(1300)
¹⁷⁰ Os	-33932.13	1346598.13		(5000)	11340.100	(2870)
¹⁷⁰ Ir	(-23260)	(1335140)		(10680)	(9340)	(-120)
¹⁷⁰ Pt	(-16460)	(1327560)		6790.110	(11900)	(1760)
¹⁷¹ Ho	-54500.600	1382300.600	3200.600		6400.600	
¹⁷¹ Er	-57728.3	1384724.3	1490.5.12		5681.5.5	8770.50
¹⁷¹ Tm	-59219.3	1385433.3	96.4.10		7486.4.14	6389.7.12
¹⁷¹ Yb	-59315.3	1384747.3			6614.8.7	6800.5.10
¹⁷¹ Lu	-57836.3	1382485.3		1478.8.19	8595.19	4353.6.19
¹⁷¹ Hf	(-55430)	(1379300)		(2400)	(7300)	(5410)
¹⁷¹ Ta	(-51740)	(1374820)		(3700)	(9600)	(2800)
¹⁷¹ W	(-47200)	(1369500)		(4600)	(8000)	(4200)
¹⁷¹ Re	(-41500)	(1363000)		5670.200	(10600)	(1500)
¹⁷¹ Os	(-34400)	(1355200)		(7100)	(8600)	(2700)
¹⁷¹ Ir	(-26260)	(1346210)		(8200)	(11070)	(-390)
¹⁷¹ Pt	(-17600)	(1336800)		(8600)	(9200)	(1700)
¹⁷² Er	-56493.5	1391560.5	891.5		6836.4	9300.600
¹⁷² Tm	-57383.6	1391669.6	1880.5		6236.5	6944.5
¹⁷² Yb	-59264.3	1392766.3			8019.7.3	7333.8.10
¹⁷² Lu	-56744.3	1389465.3		2519.3.24	6979.3	4718.1.24
¹⁷² Hf	-56390.50	1388330.50		350.50	(9030)	5850.50
¹⁷² Ta	-51470.190	1382630.190		4920.180	(7800)	(3300)
¹⁷² W	(-49000)	(1379300)		(2500)	(9900)	(4500)
¹⁷² Re	(-41600)	(1371200)		(7300)	(8200)	(1800)
¹⁷² Os	(-37190)	(1366000)		(4500)	(10800)	(3000)
¹⁷² Ir	(-27300)	(1355400)		(9800)	(9200)	(200)
¹⁷² Pt	-21150.30	1348390.30		(6200)	(11600)	(2180)
¹⁷² Au	(-9200)	(1335600)		(12000)		(-1100)
¹⁷³ Er	(-53660)	(1396800)	(2600)		(5240)	
¹⁷³ Tm	-56262.5	1398618.5	1298.5		6950.7	7058.6

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁷³ Yb	-57560 3	1399134 3			6367.6 5	7465 6
¹⁷³ Lu	-56889 3	1397681 3		670.8 17	8216.0 22	4914.4 16
¹⁷³ Hf	(-55280)	(1395290)		(1610)	(6960)	(5830)
¹⁷³ Ta	(-52490)	(1391720)		(2790)	(9100)	(3390)
¹⁷³ W	(-48500)	(1386900)		4000 300	(7600)	(4300)
¹⁷³ Re	(-43700)	(1381400)		(4800)	(10100)	(2000)
¹⁷³ Os	(-37500)	(1374300)		(6300)	(8300)	(3100)
¹⁷³ Ir	(-30080)	(1366180)		(7400)	(10800)	(200)
¹⁷³ Pt	-21890 110	1357200 110		(8190)	8810 120	(1800)
¹⁷³ Au	-12670 100	1347200 100		9220 150	(11600)	-1190 110
¹⁷⁴ Er	(-52100)	(1403300)	(1800)		(6500)	
¹⁷⁴ Tm	-53870 40	1404300 40	3080 40		5680 40	(7500)
¹⁷⁴ Yb	-56953 3	1406599 3			7464.60 10	7980 5
¹⁷⁴ Lu	-55579 3	1404442 3	272.2 23	1374.3 16	6761.1 15	5307.9 16
¹⁷⁴ Hf	-55851 3	1403932 3			(8640)	6250.9 24
¹⁷⁴ Ta	-52010 80	1399300 80		3850 80	(7580)	(4010)
¹⁷⁴ W	(-50200)	(1396700)		(1900)	(9700)	(4900)
¹⁷⁴ Re	(-43700)	(1389400)		(6500)	(8000)	(2500)
¹⁷⁴ Os	(-39900)	(1384900)		(3700)	(10600)	(3500)
¹⁷⁴ Ir	(-30900)	(1375100)		(9000)	(8900)	(800)
¹⁷⁴ Pt	-25324 14	1368711 14		(5600)	11510 110	(2530)
¹⁷⁴ Au	(-14050)	(1356650)		(11280)	(9450)	(-550)
¹⁷⁴ Hg	(-6820)	(1348640)		(7230)		(1440)
¹⁷⁵ Tm	-52320 50	1410820 50	2390 50		6520 70	(7500)
¹⁷⁵ Yb	-54704 3	1412421 3	470.0 13		5822.33 12	8120 40
¹⁷⁵ Lu	-55174 3	1412109 3			7666.7 10	5510.0 13
¹⁷⁵ Hf	-54488 3	1410640 3		685.8 22	6708.7 5	6198.6 24
¹⁷⁵ Ta	(-52490)	(1407860)		(2000)	(8560)	(3930)
¹⁷⁵ W	(-49580)	(1404170)		(2910)	(7500)	(4870)
¹⁷⁵ Re	(-45300)	(1399100)		(4300)	(9700)	(2400)
¹⁷⁵ Os	(-40000)	(1393000)		(5300)	(8200)	(3600)
¹⁷⁵ Ir	(-33400)	(1385700)		(6600)	(10600)	(800)
¹⁷⁵ Pt	(-25800)	(1377300)		(7600)	(8600)	(2200)
¹⁷⁵ Au	(-17050)	(1367730)		(8800)	(11080)	(-980)
¹⁷⁵ Hg	(-8200)	(1358100)		(8900)	(9400)	(1400)
¹⁷⁶ Tm	(-49620)	(1416190)	(3880)		(5370)	
¹⁷⁶ Yb	-53497 3	1419285 3			6864.2 11	8470 50
¹⁷⁶ Lu	-53391 3	1418397 3	1191.7 13	106.2 17	6287.98 15	5975.7 13
¹⁷⁶ Hf	-54582 3	1418806 3			8165.4 18	6697.3 13
¹⁷⁶ Ta	-51470 100	1414910 100		3110 100	(7050)	4270 100
¹⁷⁶ W	(-50680)	(1413340)		(790)	(9200)	(5480)
¹⁷⁶ Re	(-45110)	(1406990)		(5600)	(7900)	(2800)
¹⁷⁶ Os	(-41950)	(1403040)		(3200)	(10000)	(4000)
¹⁷⁶ Ir	(-34000)	(1394300)		(8000)	(8600)	(1300)
¹⁷⁶ Pt	(-28880)	(1388410)		(5100)	(11100)	(2700)
¹⁷⁶ Au	(-18400)	(1377100)		(10500)	(9400)	(-200)
¹⁷⁶ Hg	-11800 30	1369760 30		(6600)	(11700)	(2030)
¹⁷⁶ Tl	(600)	(1356500)		(12400)		(-1500)
¹⁷⁷ Tm	(-47800)	(1422400)	(3200)		(6300)	
¹⁷⁷ Yb	-50992 3	1424852 3	1399.2 20		5566.8 12	(8660)
¹⁷⁷ Lu	-52392 3	1425469 3	498.2 8		7072.2 7	6183.7 16
¹⁷⁷ Hf	-52890 3	1425185 3			6378.8 15	6788.1 11
¹⁷⁷ Ta	-51724 4	1423236 4		1166 3	8320 100	4430 3
¹⁷⁷ W	(-49700)	(1420500)		(2000)	(7100)	(5500)
¹⁷⁷ Re	(-46320)	(1416270)		(3400)	(9300)	(2900)
¹⁷⁷ Os	(-41900)	(1411000)		(4500)	(8000)	(4000)
¹⁷⁷ Ir	(-36200)	(1404600)		(5700)	(10300)	(1500)
¹⁷⁷ Pt	(-29400)	(1397000)		(6800)	(8600)	(2700)
¹⁷⁷ Au	(-21230)	(1388050)		(8200)	(10900)	(-400)
¹⁷⁷ Hg	-12720 120	1378760 120		(8500)	9000 130	(1600)
¹⁷⁷ Tl	(-2900)	(1368160)		(9800)	(11600)	(-1610)
¹⁷⁸ Yb	-49701 10	1431632 10	645 10		6780 10	(9200)
¹⁷⁸ Lu	-50346 3	1431494 3	2099.1 21		6025.4 19	6642 3
¹⁷⁸ Hf	-52445 3	1432811 3			7626.3 3	7342.2 9
¹⁷⁸ Ta	-50530 100	1430120 100		1910 100	6880 100	4930 100
¹⁷⁸ W	-50440 100	1429240 100		91.3 20	(8800)	6010 100
¹⁷⁸ Re	-45780 210	1423800 210		4660 180	(7500)	(3300)
¹⁷⁸ Os	-43450 200	1420680 200		2300 300	(9700)	(4400)
¹⁷⁸ Ir	(-36300)	(1412700)		(7200)	(8200)	(1700)
¹⁷⁸ Pt	(-31900)	(1407600)		(4300)	(10600)	(3100)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁷⁸ Au	(-22400)	(1397300)		(9600)	(9200)	(300)
¹⁷⁸ Hg	-16321 15	1390428 15		(6100)	11670 120	(2380)
¹⁷⁸ Tl	(-4440)	(1377770)		(11880)	(9600)	(-990)
¹⁷⁸ Pb	(3450)	(1369100)		(7900)		(900)
¹⁷⁹ Yb	(-46700)	(1436700)	(2400)		(5100)	
¹⁷⁹ Lu	-49067 6	1438287 6	1405 5		6793 5	6655 11
¹⁷⁹ Hf	-50473 3	1438910 3			6099.03 10	7415.8 21
¹⁷⁹ Ta	-50362 6	1438017 6		110 5	7900 100	5206 5
¹⁷⁹ W	-49303 16	1436175 16		1060 16	6930 100	6060 100
¹⁷⁹ Re	-46590 50	1432680 50		2710 50	8880 210	3440 110
¹⁷⁹ Os	(-42910)	(1428220)		(3680)	(7500)	(4400)
¹⁷⁹ Ir	(-38100)	(1422600)		(4900)	(9900)	(1900)
¹⁷⁹ Pt	(-32300)	(1416100)		(5700)	(8400)	(3400)
¹⁷⁹ Au	(-24900)	(1407900)		(7400)	(10600)	(300)
¹⁷⁹ Hg	(-17000)	(1399100)		(8000)	(8700)	(1900)
¹⁷⁹ Tl	(-7770)	(1389170)		(9200)	(11400)	(-1260)
¹⁷⁹ Pb	(2000)	(1378600)		(9800)	(9500)	(800)
¹⁸⁰ Lu	-46690 70	1443980 70	3100 70		5690 70	(7300)
¹⁸⁰ Hf	-49789 3	1446298 3			7388.2 4	8011 5
¹⁸⁰ Ta	-48936 3	1444662 3	708 4	854 3	6645 5	5752 3
¹⁸⁰ W	-49643 5	1444587 5			8412 15	6570 6
¹⁸⁰ Re	-45840 30	1440000 30		3800 30	7320 60	3830 40
¹⁸⁰ Os	(-44380)	(1437760)		(1470)	(9500)	(5070)
¹⁸⁰ Ir	(-38000)	(1430600)		(6400)	(8000)	(2300)
¹⁸⁰ Pt	(-34270)	(1426080)		(3700)	(10000)	(3500)
¹⁸⁰ Au	(-25700)	(1416700)		(8600)	(8800)	(700)
¹⁸⁰ Hg	(-20190)	(1410440)		(5500)	(11300)	(2500)
¹⁸⁰ Tl	(-9100)	(1398600)		(11100)	(9400)	(-500)
¹⁸⁰ Pb	(-1920)	(1390610)		(7200)	(12000)	(1440)
¹⁸¹ Lu	(-44900)	(1450300)	(2500)		(6300)	
¹⁸¹ Hf	-47414 3	1451994 3	1027 3		5695.7 7	8020 70
¹⁸¹ Ta	-48441 3	1452239 3			7577.0 13	5941 3
¹⁸¹ W	-48253 5	1451269 5		188 5	6681 6	6607 5
¹⁸¹ Re	-46515 14	1448748 14		1739 15	8740 40	4160 15
¹⁸¹ Os	(-43590)	(1445040)		(2930)	(7300)	(5030)
¹⁸¹ Ir	(-39520)	(1440180)		4070 80	(9600)	(2400)
¹⁸¹ Pt	(-34300)	(1434200)		(5200)	(8100)	(3600)
¹⁸¹ Au	(-28000)	(1427100)		(6300)	(10400)	(1000)
¹⁸¹ Hg	(-20700)	(1419000)		(7300)	(8600)	(2200)
¹⁸¹ Tl	(-12200)	(1409700)		(8500)	(11100)	(-700)
¹⁸¹ Pb	-2930 130	1399680 130		(9300)	(9070)	(1100)
¹⁸² Hf	-46060 7	1458711 7	373 7		6717 6	(8400)
¹⁸² Ta	-46433 3	1458302 3	1813.6 18		6062.96 16	6308 3
¹⁸² W	-48246 3	1459333 3			8064 5	7094.2 18
¹⁸² Re	-45450 100	1455750 100		2800 100	7000 100	4480 100
¹⁸² Os	-44538 25	1454060 25		910 100	(9030)	5310 30
¹⁸² Ir	-38930 140	1447670 140		5610 140	(7500)	(2600)
¹⁸² Pt	-36080 200	1444040 200		2850 140	(9900)	(3900)
¹⁸² Au	(-28300)	(1435500)		(7800)	(8400)	(1300)
¹⁸² Hg	(-23500)	(1429900)		(4800)	(10900)	(2800)
¹⁸² Tl	(-13400)	(1419000)		(10100)	(9300)	(0)
¹⁸² Pb	-6820 17	1411648 17		(6600)	11970 130	(1900)
¹⁸³ Hf	-43290 30	1464010 30	2010 30		5300 30	
¹⁸³ Ta	-45296 3	1465236 3	1070.1 18		6934.18 20	6525 7
¹⁸³ W	-46366 3	1465524 3			6190.7 10	7222.0 17
¹⁸³ Re	-45810 8	1464185 8		556 8	8430 100	4852 8
¹⁸³ Os	(-43680)	(1461270)		(2130)	(7210)	(5520)
¹⁸³ Ir	(-40230)	(1457040)		3450 100	(9370)	(2980)
¹⁸³ Pt	(-35650)	(1451680)		(4600)	(7600)	(4000)
¹⁸³ Au	(-30200)	(1445400)		(5500)	(9900)	(1400)
¹⁸³ Hg	(-23900)	(1438300)		(6300)	(8400)	(2800)
¹⁸³ Tl	(-16200)	(1429900)		(7600)	(10900)	(-0)
¹⁸³ Pb	(-7500)	(1420400)		(8700)	(8800)	(1400)
¹⁸⁴ Hf	-41500 40	1470290 40	1340 30		6290 50	
¹⁸⁴ Ta	-42840 30	1470850 30	2870 30		5620 30	6840 40
¹⁸⁴ W	-45706 3	1472936 3			7411.7 3	7699.5 18
¹⁸⁴ Re	-44224 5	1470670 5	31 4	1483 4	6485 9	5147 4
¹⁸⁴ Os	-44255 3	1469919 3			(8650)	5734 8
¹⁸⁴ Ir	-39700 300	1464600 300		4600 300	(7500)	(3300)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁸⁴ Pt	(-37360)	(1461460)		(2300)	(9800)	(4420)
¹⁸⁴ Au	(-30200)	(1453600)		(7100)	(8100)	(1900)
¹⁸⁴ Hg	(-26180)	(1448710)		(4100)	(10400)	(3300)
¹⁸⁴ Tl	(-17000)	(1438700)		(9200)	(8900)	(400)
¹⁸⁴ Pb	(-10990)	(1431960)		(6000)	(11500)	(2100)
¹⁸⁵ Ta	-41397 14	1477480 14	1992 14		6630 30	7190 40
¹⁸⁵ W	-43389 3	1478689 3	433.0 9		5753.7 3	7840 30
¹⁸⁵ Re	-43822 3	1478340 3			7669 4	5404.4 9
¹⁸⁵ Os	-42809 3	1476545 3		1012.8 4	6625.4 9	5874 4
¹⁸⁵ Ir	(-40440)	(1473390)		(2370)	(8800)	(3470)
¹⁸⁵ Pt	(-36620)	(1468790)		(3800)	(7300)	(4200)
¹⁸⁵ Au	(-31910)	(1463300)		4710 40	(9800)	(1800)
¹⁸⁵ Hg	(-26100)	(1456700)		(5800)	(8000)	(3100)
¹⁸⁵ Tl	(-19500)	(1449300)		(6600)	(10500)	(600)
¹⁸⁵ Pb	(-11600)	(1440600)		(7900)	(8600)	(1900)
¹⁸⁵ Bi	(-1800)	(1430000)		(9800)		(-1900)
¹⁸⁶ Ta	-38610 60	1482760 60	3900 60		5290 60	
¹⁸⁶ W	-42512 3	1485884 3			7194.3 17	8404 14
¹⁸⁶ Re	-41930 3	1484520 3	1069.5 9	581.6 17	6179.7 7	5830.3 11
¹⁸⁶ Os	-43000 3	1484807 3			8262.0 12	6466.9 11
¹⁸⁶ Ir	-39169 20	1480193 20		3831 20	(6800)	3649 20
¹⁸⁶ Pt	-37790 30	1478030 30		1380 40	(9240)	(4640)
¹⁸⁶ Au	-31750 140	1471210 140		6040 140	(7900)	(2400)
¹⁸⁶ Hg	-28450 200	1467130 200		3300 140	(10400)	(3800)
¹⁸⁶ Tl	(-20000)	(1457900)		(8500)	(8600)	(1200)
¹⁸⁶ Pb	(-14600)	(1451700)		(5400)	(11100)	(2400)
¹⁸⁶ Bi	(-3300)	(1439600)		(11300)	(9600)	(-1000)
¹⁸⁷ Ta	(-36900)	(1489100)	(3000)		(6300)	
¹⁸⁷ W	-39907 3	1491350 3	1311.2 13		5466.72 21	8590 60
¹⁸⁷ Re	-41218 3	1491879 3	2.663 19		7359.5 14	5995.5 13
¹⁸⁷ Os	-41221 3	1491099 3			6292.6 13	6579.8 14
¹⁸⁷ Ir	-39718 7	1488815 7		1502 6	8621 21	4008 6
¹⁸⁷ Pt	(-36610)	(1484920)		(3110)	(6890)	(4730)
¹⁸⁷ Au	(-33010)	(1480540)		3600 40	(9330)	(2510)
¹⁸⁷ Hg	(-28150)	(1474890)		(4900)	(7800)	(3700)
¹⁸⁷ Tl	(-22200)	(1468200)		(5900)	(10300)	(1000)
¹⁸⁷ Pb	(-15000)	(1460200)		(7200)	(8500)	(2300)
¹⁸⁷ Bi	(-6100)	(1450500)		(8900)	(10900)	(-1200)
¹⁸⁸ W	-38669 4	1498184 4	349 3		6834 3	(9100)
¹⁸⁸ Re	-39018 3	1497751 3	2120.4 4		5871.6 3	6400.4 13
¹⁸⁸ Os	-41139 3	1499089 3			7989.3 3	7209.6 3
¹⁸⁸ Ir	-38329 7	1495497 7		2809 7	6682 9	4398 7
¹⁸⁸ Pt	-37823 6	1494208 6		507 7	(9280)	5393 8
¹⁸⁸ Au	(-32520)	(1488130)		(5300)	(7580)	(3200)
¹⁸⁸ Hg	(-30230)	(1485050)		(2300)	(10200)	(4500)
¹⁸⁸ Tl	(-22430)	(1476470)		(7800)	(8300)	(1600)
¹⁸⁸ Pb	(-17640)	(1470900)		(4800)	(10700)	(2700)
¹⁸⁸ Bi	(-7300)	(1459800)		(10400)	(9300)	(-500)
¹⁸⁹ W	-35480 200	1503060 200	2500 200		4880 200	
¹⁸⁹ Re	-37979 9	1504782 9	1009 8		7032 8	6598 9
¹⁸⁹ Os	-38988 3	1505009 3			5920.6 5	7258.6 6
¹⁸⁹ Ir	-38456 13	1503695 13		532 13	8198 14	4606 13
¹⁸⁹ Pt	-36485 11	1500942 11		1971 14	6734 12	5445 13
¹⁸⁹ Au	(-33640)	(1497310)		(2850)	(9180)	(3100)
¹⁸⁹ Hg	(-29700)	(1492600)		(3950)	(7500)	(4500)
¹⁸⁹ Tl	(-24500)	(1486600)		5180 200	(10200)	(1600)
¹⁸⁹ Pb	(-17800)	(1479100)		(6700)	(8200)	(2700)
¹⁸⁹ Bi	(-9800)	(1470300)		(8000)	(10600)	(-600)
¹⁹⁰ W	-34290 160	1509950 160	1270 70		6900 300	
¹⁹⁰ Re	-35560 150	1510430 150	3150 150		5650 150	7370 250
¹⁹⁰ Os	-38708 3	1512801 3			7791.6 9	8018 8
¹⁹⁰ Ir	-36710 200	1510020 200	620 200	2000 200	6320 200	5010 200
¹⁹⁰ Pt	-37325 6	1509853 6			8911 10	6158 13
¹⁹⁰ Au	-32883 16	1504629 16		4442 15	(7320)	3687 18
¹⁹⁰ Hg	(-31410)	(1502370)		(1470)	(9800)	(5060)
¹⁹⁰ Tl	(-24400)	(1494600)		7000 400	(8000)	(2000)
¹⁹⁰ Pb	-20330 200	1489720 200		(4100)	(10600)	(3100)
¹⁹⁰ Bi	(-10700)	(1479300)		(9600)	(9000)	(200)
¹⁹⁰ Po	(-4600)	(1472400)		(6100)		(2100)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁹¹ Re	-34351 11	1517297 11	2045 10		6860 150	7350 160
¹⁹¹ Os	-36396 3	1518560 3	313.7 11		5758.67 16	8130 150
¹⁹¹ Ir	-36709 3	1518091 3			8070 200	5290.1 11
¹⁹¹ Pt	-35691 5	1516290 5		1019 4	6437 6	6270 200
¹⁹¹ Au	-33860 50	1513680 50		1830 50	9050 50	3820 50
¹⁹¹ Hg	-30680 90	1509720 90		3180 70	(7340)	5090 90
¹⁹¹ Tl	(-26190)	(1504440)		(4490)	(9900)	(2100)
¹⁹¹ Pb	(-20310)	(1497780)		(5900)	(8100)	(3200)
¹⁹¹ Bi	(-13000)	(1489700)		(7300)	(10400)	(-0)
¹⁹¹ Po	(-5100)	(1481000)		(7900)	(8700)	(1700)
¹⁹² Re	(-31710)	(1522730)	(4170)		(5430)	
¹⁹² Os	-35882 4	1526118 4			7558.0 21	8821 10
¹⁹² Ir	-34836 3	1524289 3	1459.7 19	1046.2 23	6198.08 20	5729.5 12
¹⁹² Pt	-36296 3	1524966 3			8676 3	6875.4 19
¹⁹² Au	-32780 16	1520668 16		3516 16	6990 50	4378 16
¹⁹² Hg	(-32100)	(1519200)		(700)	(9500)	(5500)
¹⁹² Tl	(-25900)	(1512300)		(6120)	(7800)	(2600)
¹⁹² Pb	(-22580)	(1508120)		(3400)	(10300)	(3700)
¹⁹² Bi	(-13630)	(1498390)		(9000)	(8700)	(600)
¹⁹² Po	(-7900)	(1491870)		(5700)	(10800)	(2200)
¹⁹³ Re	(-30300)	(1529390)	(3100)		(6700)	
¹⁹³ Os	-33396 4	1531703 4	1140.6 24		5585.1 9	(8980)
¹⁹³ Ir	-34537 3	1532061 3			7771.85 20	5943.3 23
¹⁹³ Pt	-34480 3	1531222 3		56.6 3	6255.5 19	6932.9 4
¹⁹³ Au	-33412 9	1529371 9		1069 9	8703 18	4405 9
¹⁹³ Hg	-31071 19	1526248 19		2340 17	(7100)	5581 25
¹⁹³ Tl	(-27430)	(1521830)		(3640)	(9600)	(2700)
¹⁹³ Pb	(-22280)	(1515890)		(5150)	(7800)	(3600)
¹⁹³ Bi	(-15800)	(1508600)		(6500)	(10200)	(500)
¹⁹³ Po	(-8300)	(1500300)		(7500)	(8500)	(1900)
¹⁹⁴ Os	-32436 4	1538814 4	96.6 20		7111 3	(9420)
¹⁹⁴ Ir	-32532 3	1538128 3	2246.9 16		6066.8 4	6425.0 24
¹⁹⁴ Pt	-34779 3	1539592 3			8370.4 16	7531.4 16
¹⁹⁴ Au	-32287 12	1536318 12		2492 11	6947 14	5096 11
¹⁹⁴ Hg	-32247 23	1535496 23		40 20	9250 30	6125 25
¹⁹⁴ Tl	(-26970)	(1529430)		(5280)	(7610)	(3180)
¹⁹⁴ Pb	(-24250)	(1525930)		(2720)	(10040)	(4100)
¹⁹⁴ Bi	(-16100)	(1517000)		8200 400	(8400)	(1100)
¹⁹⁴ Po	-10910 200	1511030 200		(5200)	(10700)	(2400)
¹⁹⁴ At	(-800)	(1500100)		(10100)		(-200)
¹⁹⁵ Os	-29700 500	1544100 500	2000 500		5300 500	
¹⁹⁵ Ir	-31693 3	1545360 3	1120.1 16		7231.87 11	6546.1 20
¹⁹⁵ Pt	-32813 3	1545697 3			6105.06 12	7569.6 16
¹⁹⁵ Au	-32586 3	1544688 3		226.8 10	8370 11	5095.9 10
¹⁹⁵ Hg	-31080 50	1542400 50		1510 50	6900 60	6080 50
¹⁹⁵ Tl	(-28270)	(1538810)		(2800)	(9380)	(3320)
¹⁹⁵ Pb	(-23800)	(1533500)		(4500)	(7600)	(4100)
¹⁹⁵ Bi	(-17930)	(1526900)		(5900)	(9900)	(1000)
¹⁹⁵ Po	(-11140)	(1519330)		(6800)	(8300)	(2400)
¹⁹⁵ At	(-3200)	(1510600)		(8000)	(10500)	(-500)
¹⁹⁶ Os	-28300 40	1550820 40	1160 60		6700 500	
¹⁹⁶ Ir	-29450 40	1551190 40	3210 40		5830 40	7100 500
¹⁹⁶ Pt	-32663 3	1553619 3			7921.88 15	8259.6 16
¹⁹⁶ Au	-31158 4	1551331 4	686 3	1506 3	6643 3	5634 3
¹⁹⁶ Hg	-31844 4	1551235 4			8840 50	6546 3
¹⁹⁶ Tl	(-27470)	(1546080)		(4380)	(7260)	(3680)
¹⁹⁶ Pb	(-25420)	(1543250)		(2050)	(9700)	(4440)
¹⁹⁶ Bi	-18100 700	1535100 700		(7400)	(8200)	(1600)
¹⁹⁶ Po	(-13500)	(1529760)		(4600)	(10400)	(2900)
¹⁹⁶ At	(-4000)	(1519480)		(9500)	(8900)	(200)
¹⁹⁷ Ir	-28284 20	1558093 20	2155 20		6900 40	7280 40
¹⁹⁷ Pt	-30439 3	1559466 3	718.9 6		5846.4 3	8270 40
¹⁹⁷ Au	-31158 3	1559402 3			8071 3	5783.0 7
¹⁹⁷ Hg	-30558 4	1558020 4		600 3	6785.4 15	6689 3
¹⁹⁷ Tl	-28370 30	1555050 30		2180 30	(8980)	3820 30
¹⁹⁷ Pb	(-24800)	(1550690)		(3580)	(7450)	(4620)
¹⁹⁷ Bi	-19620 160	1544740 160		(5180)	9600 700	(1490)
¹⁹⁷ Po	(-13450)	(1537780)		(6180)	(8000)	(2700)
¹⁹⁷ At	(-6300)	(1529800)		(7200)	(10300)	(0)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
¹⁹⁸ Ir	(-25820)	(1563700)	(4100)		(5610)	
¹⁹⁸ Pt	-29924 4	1567022 4			7557 3	8929 20
¹⁹⁸ Au	-29598 3	1565914 3	1372.4 5	325 3	6512.17 22	6448.8 6
¹⁹⁸ Hg	-30971 3	1566504 3			8484 3	7102.2 6
¹⁹⁸ Tl	-27510 80	1562260 80		3460 80	7210 80	4240 80
¹⁹⁸ Pb	(-26100)	(1560070)		(1410)	(9380)	(5020)
¹⁹⁸ Bi	-19540 140	1552730 140		(6560)	7990 160	(2030)
¹⁹⁸ Po	(-15510)	(1547920)		(4030)	(10140)	(3180)
¹⁹⁸ At	(-6700)	(1538400)		8800 400	(8600)	(600)
¹⁹⁸ Rn	-1140 200	1531980 200		(5600)		(2200)
¹⁹⁹ Pt	-27409 4	1572578 4	1702 3		5556.1 5	(8880)
¹⁹⁹ Au	-29111 3	1573498 3	452.6 7		7583.88 21	6476 3
¹⁹⁹ Hg	-29563 3	1573169 3			6664.0 6	7254.1 7
¹⁹⁹ Tl	-28120 100	1570940 100		1440 100	8680 130	4440 100
¹⁹⁹ Pb	-25240 70	1567280 70		2880 90	(7210)	5010 100
¹⁹⁹ Bi	-20890 90	1562150 90		4340 100	9420 130	(2080)
¹⁹⁹ Po	(-15300)	(1555800)		(5600)	(7800)	(3000)
¹⁹⁹ At	(-8730)	(1548420)		(6600)	(10000)	(500)
¹⁹⁹ Rn	(-1580)	(1540490)		(7200)	(8500)	(2100)
²⁰⁰ Pt	-26619 20	1579860 20	660 60		7282 20	
²⁰⁰ Au	-27280 50	1579740 50	2240 50		6240 50	7160 50
²⁰⁰ Hg	-29520 3	1581197 3			8028.26 25	7698.5 7
²⁰⁰ Tl	-27064 6	1577958 6		2456 6	7020 100	4790 6
²⁰⁰ Pb	-26254 13	1576366 13		810 14	9090 70	5420 100
²⁰⁰ Bi	-20360 90	1569690 90		5890 90	7540 100	2420 110
²⁰⁰ Po	(-17010)	(1565560)		(3350)	(9800)	(3410)
²⁰⁰ At	-9000 700	1556800 700		(8000)	(8400)	(1000)
²⁰⁰ Rn	(-4030)	(1551010)		(5000)	(10500)	(2600)
²⁰¹ Pt	-23740 50	1585060 50	2660 50		5200 60	
²⁰¹ Au	-26404 15	1586934 15	1275 15		7200 50	7074 25
²⁰¹ Hg	-27679 3	1587427 3			6230.2 6	7690 50
²⁰¹ Tl	-27197 15	1586162 15		483 15	8203 16	4965 15
²⁰¹ Pb	-25290 30	1583480 30		1900 30	7110 30	5520 30
²⁰¹ Bi	-21450 30	1578850 30		3840 40	9160 90	2480 30
²⁰¹ Po	(-16570)	(1573190)		(4880)	(7630)	(3500)
²⁰¹ At	-10720 160	1566560 160		(5850)	9800 700	(1000)
²⁰¹ Rn	(-4160)	(1559210)		(6560)	(8200)	(2400)
²⁰¹ Fr	(3700)	(1550600)		(7900)		(-500)
²⁰² Au	-24420 170	1593020 170	2950 170		6080 170	7960 170
²⁰² Hg	-27362 3	1595181 3			7754.31 23	8247 15
²⁰² Tl	-25998 15	1593035 15		1364 15	6873 21	5608 15
²⁰² Pb	-25948 10	1592203 10		50 15	8730 30	6041 18
²⁰² Bi	-20790 50	1586260 50		5160 50	7410 60	2790 60
²⁰² Po	(-17980)	(1582660)		(2820)	(9470)	(3810)
²⁰² At	-10760 140	1574670 140		(7210)	8110 160	(1480)
²⁰² Rn	(-6310)	(1569440)		(4450)	(10230)	(2880)
²⁰² Fr	(3100)	(1559300)		9400 400	(8700)	(100)
²⁰³ Au	-23145 15	1599817 15	2139 15		6800 170	
²⁰³ Hg	-25284 3	1601174 3	491.9 12		5992.9 17	8160 170
²⁰³ Tl	-25776 3	1600884 3			7849 15	5702.4 12
²⁰³ Pb	-24801 7	1599126 7		975 6	6924 11	6092 16
²⁰³ Bi	-21548 20	1595091 20		3253 21	8830 50	2888 22
²⁰³ Po	-17310 60	1590080 60		4230 60	(7410)	3810 80
²⁰³ At	-12260 90	1584230 90		5060 100	9560 130	(1570)
²⁰³ Rn	(-6200)	(1577400)		(6000)	(8000)	(2800)
²⁰³ Fr	(980)	(1569440)		(7200)	(10200)	(-0)
²⁰⁴ Au	(-20910)	(1605650)	(3800)		(5830)	
²⁰⁴ Hg	-24707 3	1608669 3			7495.0 18	8852 15
²⁰⁴ Tl	-24360 3	1607540 3	763.70 18	347.3 15	6655.8 3	6365.3 13
²⁰⁴ Pb	-25124 3	1607521 3			8395 6	6637.2 3
²⁰⁴ Bi	-20686 22	1602301 22		4438 22	7210 30	3175 23
²⁰⁴ Po	-18344 13	1599176 13		2342 25	9100 70	4085 24
²⁰⁴ At	-11870 70	1591920 70		6480 70	7680 90	1840 90
²⁰⁴ Rn	(-8040)	(1587310)		(3820)	(9900)	(3080)
²⁰⁴ Fr	600 700	1577900 700		(8600)	(8500)	(500)
²⁰⁴ Ra	(6000)	(1571700)		(5500)		(2200)
²⁰⁵ Hg	-22304 5	1614337 5	1531 4		5668 4	(8690)
²⁰⁵ Tl	-23835 3	1615086 3			7546.4 5	6416.8 15
²⁰⁵ Pb	-23784 3	1614252 3		51.2 5	6731.50 15	6712.84 23

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²⁰⁵ Bi	-21076.8	1610762.8		2708.7	8461.22	3241.7
²⁰⁵ Po	-17540.30	1606450.30		3530.30	7270.30	4150.40
²⁰⁵ At	-13010.30	1601130.30		4540.40	9210.70	1950.30
²⁰⁵ Rn	(-7760)	(1595100)		(5240)	(7790)	(3180)
²⁰⁵ Fr	-1240.150	1587800.150		(6520)	9900.700	(490)
²⁰⁵ Ra	(5770)	(1580000)		(7010)	(8300)	(2100)
²⁰⁶ Hg	-20959.21	1621064.21	1308.20		6727.21	
²⁰⁶ Tl	-22268.3	1621590.3	1533.2.7		6503.7.4	7253.4
²⁰⁶ Pb	-23801.3	1622340.3			8088.1.4	7254.5.6
²⁰⁶ Bi	-20043.8	1617801.8		3758.8	7039.10	3548.8
²⁰⁶ Po	-18197.10	1615172.10		1846.12	8720.30	4410.12
²⁰⁶ At	-12480.50	1608670.50		5720.50	7550.60	2220.60
²⁰⁶ Rn	(-9170)	(1604580)		(3310)	(9480)	(3450)
²⁰⁶ Fr	-1410.140	1596040.140		(7750)	8240.160	(940)
²⁰⁶ Ra	(3530)	(1590320)		(4940)	(10320)	(2520)
²⁰⁷ Hg	-16270.150	1624450.150	4780.150		3380.150	
²⁰⁷ Tl	-21044.6	1628438.6	1423.5		6848.6	7374.21
²⁰⁷ Pb	-22467.3	1629078.3			6737.79.11	7488.6.7
²⁰⁷ Bi	-20068.4	1625897.4		2398.8.21	8096.8	3556.6.21
²⁰⁷ Po	-17160.7	1622206.7		2909.6	7034.11	4406.10
²⁰⁷ At	-13250.20	1617514.20		3910.21	8840.50	2342.22
²⁰⁷ Rn	-8640.60	1612120.60		4610.60	(7540)	3450.80
²⁰⁷ Fr	-2930.80	1605630.80		5710.100	9590.120	(1050)
²⁰⁷ Ra	(3500)	(1598400)		(6400)	(8100)	(2400)
²⁰⁸ Tl	-16763.3	1632227.3	5000.9.17		3790.6	7780.150
²⁰⁸ Pb	-21764.3	1636446.3			7367.82.9	8008.5
²⁰⁸ Bi	-18884.4	1632784.4		2879.7.20	6887.3	3705.8.20
²⁰⁸ Po	-17484.3	1630601.3		1400.6.24	8395.6	4704.0.25
²⁰⁸ At	-12510.22	1624845.22		4973.22	7330.30	2639.22
²⁰⁸ Rn	-9659.14	1621212.14		2851.25	9090.70	3698.24
²⁰⁸ Fr	-2670.50	1613440.50		6990.50	7810.60	1320.80
²⁰⁸ Ra	(1660)	(1608330)		(4330)	(9900)	(2700)
²⁰⁹ Tl	-13648.10	1637184.10	3980.10		4956.10	
²⁰⁹ Pb	-17628.3	1640382.3	644.1.11		3935.9.13	8154.5.21
²⁰⁹ Bi	-18273.3	1640244.3			7459.8.19	3797.7.8
²⁰⁹ Po	-16380.3	1637569.3		1892.6.16	6967.7.19	4784.8.24
²⁰⁹ At	-12893.8	1633300.8		3486.7	8455.22	2699.7
²⁰⁹ Rn	-8960.30	1628590.30		3930.30	7380.30	3740.40
²⁰⁹ Fr	-3800.30	1622640.30		5160.40	9200.50	1430.30
²⁰⁹ Ra	(1810)	(1616250)		(5610)	(7920)	(2810)
²⁰⁹ Ac	8920.160	1608360.160		(7110)		(30)
²¹⁰ Tl	-9258.12	1640866.12	5484.12		3682.15	
²¹⁰ Pb	-14742.3	1645567.3	63.5.5		5185.2.12	8383.10
²¹⁰ Bi	-14806.3	1644848.3	1162.7.8		4604.58.13	4466.3.11
²¹⁰ Po	-15968.3	1645229.3			7659.8.14	4984.9.8
²¹⁰ At	-11987.8	1640465.8		3981.8	7165.11	2896.8
²¹⁰ Rn	-9613.10	1637309.10		2374.12	8720.30	4009.12
²¹⁰ Fr	-3351.20	1630264.20		6262.23	7620.30	1680.40
²¹⁰ Ra	(420)	(1625720)		(3770)	(9470)	(3070)
²¹⁰ Ac	8620.150	1616730.150		(8210)	8370.170	(480)
²¹¹ Pb	-10496.3	1649393.3	1373.6		3825.3	8527.12
²¹¹ Bi	-11869.6	1649983.6	579.6		5135.6	4416.6
²¹¹ Po	-12448.3	1649779.3			4550.8.5	4931.1.9
²¹¹ At	-11661.4	1648210.4		787.3	7745.8	2981.7.25
²¹¹ Rn	-8770.7	1644537.7		2891.7	7228.12	4072.10
²¹¹ Fr	-4165.20	1639149.20		4605.20	8880.30	1840.22
²¹¹ Ra	830.70	1633370.70		5000.60	(7660)	3110.70
²¹¹ Ac	7120.90	1626300.90		6290.110	9570.140	(580)
²¹² Pb	-7557.3	1654525.3	573.7.20		5132.3	
²¹² Bi	-8131.3	1654316.3	2254.0.17		4333.6	4923.3
²¹² Po	-10385.3	1655788.3			6008.2.5	5805.5
²¹² At	-8630.4	1653251.4	43.4	1754.3	5040.4	3471.3
²¹² Rn	-8674.4	1652512.4			7975.7	4301.4
²¹² Fr	-3556.21	1646612.21		5117.22	7460.30	2075.22
²¹² Ra	-202.14	1642475.14		3354.25	9110.70	3326.24
²¹² Ac	7270.70	1634220.70		7480.70	7920.90	850.90
²¹² Th	(12030)	(1628680)		(4760)		(2380)
²¹³ Pb	(-3170)	(1658210)	(2070)		(3690)	
²¹³ Bi	-5241.8	1659497.8	1426.7		5181.7	4972.7

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²¹³ Po	-6667 4	1660141 4			4354 3	5825 3
²¹³ At	-6594 6	1659285 6		73 5	6035 5	3498 5
²¹³ Rn	-5712 7	1657621 7		882 8	5110 7	4371 7
²¹³ Fr	-3563 8	1654691 8		2148 10	8079 22	2179 8
²¹³ Ra	320 30	1650020 30		3880 30	7550 30	3410 40
²¹³ Ac	6130 60	1643440 60		5810 60	9220 80	960 60
²¹³ Th	(12070)	(1636710)		(5950)	(8030)	(2490)
²¹⁴ Pb	-189 3	1663299 3	1023 11		(5090)	
²¹⁴ Bi	-1212 11	1663540 11	3272 11		4043 13	(5330)
²¹⁴ Po	-4484 3	1666029 3			5888 3	6532 7
²¹⁴ At	-3394 5	1664157 5	942 10	1090 4	4871 6	4016 5
²¹⁴ Rn	-4335 10	1664316 10			6695 11	5031 10
²¹⁴ Fr	-975 9	1660173 9		3361 13	5482 11	2552 11
²¹⁴ Ra	85 11	1658332 11		1059 14	8310 30	3641 13
²¹⁴ Ac	6420 50	1651210 50		6340 50	7770 80	1180 60
²¹⁴ Th	(10670)	(1646190)		(4240)	(9480)	(2750)
²¹⁵ Bi	1710 100	1668690 100	2250 100		5150 100	5390 100
²¹⁵ Po	-545 3	1670162 3	721 7		4133 3	6622 11
²¹⁵ At	-1266 7	1670100 7			5943 8	4071 7
²¹⁵ Rn	-1184 8	1669236 8		82 10	4920 12	5079 9
²¹⁵ Fr	304 8	1666966 8		1488 10	6793 11	2650 11
²¹⁵ Ra	2519 8	1663969 8		2215 10	5637 13	3796 11
²¹⁵ Ac	6010 50	1659700 50		3490 50	8490 80	1370 50
²¹⁵ Th	10920 70	1654000 70		4910 80	(7820)	2790 80
²¹⁵ Pa	17710 110	1646430 110		6790 120		(240)
²¹⁶ Bi	(5770)	(1672700)	(4000)		(4000)	
²¹⁶ Po	1774 3	1675914 3			5752 3	7220 100
²¹⁶ At	2243 4	1674662 4	2003 8	469 4	4562 8	4500 4
²¹⁶ Rn	240 8	1675883 8			6647 10	5783 10
²¹⁶ Fr	2970 13	1672371 13		2730 14	5406 14	3135 15
²¹⁶ Ra	3277 9	1671282 9		307 15	7313 11	4316 11
²¹⁶ Ac	8112 23	1665664 23		4835 25	5970 60	1696 24
²¹⁶ Th	10294 16	1662700 16		2180 30	8700 70	3000 60
²¹⁶ Pa	17710 90	1654500 90		7420 90	8070 120	500 110
²¹⁷ Po	(5910)	(1679850)	(1530)		(3930)	(7150)
²¹⁷ At	4386 8	1680591 8	740 8		5929 8	4677 7
²¹⁷ Rn	3647 5	1680548 5			4665 8	5886 5
²¹⁷ Fr	4301 7	1679112 7		654 8	6741 14	3229 10
²¹⁷ Ra	5874 10	1676756 10		1573 11	5475 13	4385 16
²¹⁷ Ac	8693 13	1673155 13		2819 16	7490 30	1873 15
²¹⁷ Th	12170 30	1668900 30		3480 30	6200 30	3230 40
²¹⁷ Pa	17040 80	1663250 80		4870 80	8750 110	540 80
²¹⁸ Po	8351 3	1685480 3	264 12		(5640)	
²¹⁸ At	8087 12	1684962 12	2883 12		4371 14	(5120)
²¹⁸ Rn	5204 4	1687062 4			6514 5	6472 8
²¹⁸ Fr	7046 5	1684438 5	410 12	1842 5	5326 8	3890 6
²¹⁸ Ra	6636 11	1684066 12			7309 14	4954 13
²¹⁸ Ac	10830 50	1679090 50		4190 50	5940 50	2330 50
²¹⁸ Th	12358 14	1676778 14		1530 50	7880 30	3623 19
²¹⁸ Pa	18640 70	1669710 70		6290 70	6470 100	810 80
²¹⁸ U	(21880)	(1665690)		(3230)		(2450)
²¹⁹ At	10520 80	1690600 80	1700 80		5640 80	5120 80
²¹⁹ Rn	8826 3	1691511 3	218 7		4449 4	6550 12
²¹⁹ Fr	8608 7	1690947 7			6509 8	3885 7
²¹⁹ Ra	9371 12	1689401 12		764 13	5336 16	4963 12
²¹⁹ Ac	11560 50	1686430 50		2180 50	7340 70	2370 50
²¹⁹ Th	14460 50	1682750 50		2900 70	5970 50	3660 70
²¹⁹ Pa	18520 70	1677910 70		4060 90	8200 100	1130 70
²¹⁹ U	(23250)	(1672400)		(4730)	(6700)	(2690)
²²⁰ At	(14250)	(1694940)	(3650)		(4340)	
²²⁰ Rn	10604 3	1697805 3			6293 3	7210 80
²²⁰ Fr	11469 5	1696157 5	1209 11	865 4	5210 8	4646 5
²²⁰ Ra	10260 10	1696584 10			7183 15	5637 12
²²⁰ Ac	13740 50	1692320 50		3480 50	5880 70	2920 50
²²⁰ Th	14655 22	1690624 22		910 60	7870 60	4190 60
²²⁰ Pa	20370 60	1684130 60		5710 60	6220 90	1380 70
²²⁰ U	(23000)	(1680700)		(2700)	(8300)	(2800)
²²¹ Rn	(14490)	(1701990)	(1220)		(4190)	(7060)
²²¹ Fr	13269 8	1702428 8	312 9		6271 8	4624 7

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²²¹ Ra	12957 7	1701958 7			5374 12	5801 8
²²¹ Ac	14510 50	1699620 50		1550 50	7300 70	3040 50
²²¹ Th	16926 10	1696424 10		2420 50	5800 24	4100 50
²²¹ Pa	20370 50	1692200 50		3440 50	8070 80	1580 60
²²¹ U	(24540)	(1687240)		(4180)	(6500)	(3110)
²²² Rn	16366 3	1708186 3	25 21		(6190)	
²²² Fr	16341 21	1707428 21	2032 21		5000 22	(5430)
²²² Ra	14309 5	1708678 5			6720 8	6249 8
²²² Ac	16599 21	1705605 21		2290 21	5980 50	3647 22
²²² Th	17190 13	1704232 13		591 24	7808 16	4610 50
²²² Pa	(22050)	(1698590)		(4860)	(6390)	(2170)
²²² U	(24280)	(1695570)		(2230)	(8330)	(3370)
²²³ Fr	18379 3	1713461 3	1149.1 9		6033 21	5275.6 24
²²³ Ra	17230 3	1713828 3			5150 5	6400 21
²²³ Ac	17816 7	1712460 7		586 7	6855 22	3782 8
²²³ Th	19363 12	1710130 12		1547 14	5898 17	4525 24
²²³ Pa	22320 70	1706390 70		2960 70	(7800)	2160 70
²²³ U	25820 70	1702100 70		3500 100	(6530)	(3520)
²²⁴ Fr	21640 50	1718270 50	2820 50		4810 50	
²²⁴ Ra	18818 3	1720312 3			6484 3	6850.5 24
²²⁴ Ac	20221 5	1718126 5	232 13	1403 4	5666 8	4298 5
²²⁴ Th	19989 12	1717576 12			7445 17	5116 14
²²⁴ Pa	23860 50	1712920 50		3870 50	6530 90	2790 50
²²⁴ U	25700 25	1710300 25		1840 60	8200 80	3910 80
²²⁵ Fr	23851 10	1724132 10	1866 10		5860 50	
²²⁵ Ra	21986 3	1725215 3	357 7		4903 3	6940 50
²²⁵ Ac	21629 8	1724789 8			6663 8	4477 7
²²⁵ Th	22304 7	1723332 7		675 10	5756 14	5206 8
²²⁵ Pa	24330 70	1720530 70		2020 70	7610 90	2950 70
²²⁵ U	27370 50	1716700 50		3050 90	6400 60	3780 70
²²⁵ Np	31580 70	1711710 70		4210 90		1410 80
²²⁶ Fr	27300 80	1728760 80	3630 80		4630 80	
²²⁶ Ra	23661 3	1731611 3			6396 3	7479 10
²²⁶ Ac	24302 4	1730188 4	1116 5	640 3	5399 8	4973 4
²²⁶ Th	23185 5	1730522 5			7190 8	5733 8
²²⁶ Pa	26011 23	1726914 23		2825 24	6390 70	3582 24
²²⁶ U	27321 20	1724821 20		1310 30	8120 50	4290 70
²²⁶ Np	(32670)	(1718690)		(5350)	(6980)	(1990)
²²⁷ Fr	29660 90	1734470 90	2490 90		5710 120	
²²⁷ Ra	27171 3	1736172 3	1325.1 24		4561.3 3	7410 80
²²⁷ Ac	25846 3	1736715 3	44.8 8		6527 3	5104.0 23
²²⁷ Th	25801 3	1735977 3			5455 5	5789 3
²²⁷ Pa	26821 8	1734175 8		1019 8	7261 24	3654 9
²²⁷ U	28999 19	1731215 19		2178 20	6390 30	4300 30
²²⁷ Np	32560 70	1726870 70		3570 70	(8180)	2050 80
²²⁸ Fr	33300 400	1738900 400	4300 400		4500 400	
²²⁸ Ra	28935 3	1742479 3	45.9 9		6307.5 24	8010 90
²²⁸ Ac	28889 3	1741743 3	2127 3		5028 3	5571 3
²²⁸ Th	26763 3	1743087 3			7110.1 25	6372.5 24
²²⁸ Pa	28874 5	1740193 5		2111 5	6018 9	4216 5
²²⁸ U	29217 16	1739068 16		343 16	7853 24	4892 17
²²⁸ Np	(33700)	(1733800)		(4480)	(6930)	(2590)
²²⁹ Ra	32430 60	1747050 60	1760 40		4570 60	8100 400
²²⁹ Ac	30670 50	1748030 50	1100 50		6290 50	5550 50
²²⁹ Th	29579 3	1748343 3			5255 3	6600 3
²²⁹ Pa	29895 9	1747244 9		316 9	7051 10	4157 9
²²⁹ U	31204 8	1745153 8		1309 11	6085 17	4959 9
²²⁹ Np	33760 90	1741810 90		2560 90	(8010)	2740 90
²³⁰ Ra	34540 30	1753010 30	990 110		5960 70	
²³⁰ Ac	33560 100	1753220 100	2700 100		5190 110	6170 120
²³⁰ Th	30856.3 20	1755136.1 21			6793.6 24	7110 50
²³⁰ Pa	32166 3	1753044 3	563 5	1310 3	5800 9	4701 4
²³⁰ U	31603 5	1752825 5			7672 9	5581 10
²³⁰ Np	35210 60	1748430 60		3610 60	6620 100	3280 60
²³⁰ Pu	36921 25	1745942 25		1710 60		4130 90
²³¹ Ac	35910 100	1758940 100	2100 100		5720 140	5920 110
²³¹ Th	33809.6 21	1760254.1 21	389.5 17		5118.04 20	7040 100
²³¹ Pa	33420 3	1759861 3			6817 3	4725.2 17

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²³¹ U	33780 50	1758720 50		360 50	5900 50	5680 50
²³¹ Np	35610 50	1756100 50		1840 70	7670 70	3280 50
²³¹ Pu	(38420)	(1752510)		(2810)	(6570)	(4080)
²³² Ac	39140 100	1763770 100	3700 100		4840 140	
²³² Th	35442.9 21	1766692.3 21			6438.1 12	7760 100
²³² Pa	35938 8	1765415 8	1337 7	495 8	5553 8	5160 8
²³² U	34601 3	1765969 3			7250 50	6107.9 23
²³² Np	(37300)	(1762490)		(2700)	(6390)	(3770)
²³² Pu	38358 19	1760648 19		(1060)	(8140)	4540 50
²³³ Th	38727.9 21	1771478.6 21	1245.2 14		4786.35 25	7700 100
²³³ Pa	37482.6 23	1771941.5 23	570.5 22		6527 8	5249.2 14
²³³ U	36912 3	1771730 3			5760 3	6315 8
²³³ Np	(38150)	(1769710)		(1230)	(7220)	(3740)
²³³ Pu	40050 50	1767030 50		(1900)	6380 50	(4540)
²³³ Am	(43290)	(1763010)		(3240)		(2360)
²³⁴ Th	40610 4	1777668 4	273 3		6189 3	
²³⁴ Pa	40337 5	1777159 5	2197 5		5217 5	5680 5
²³⁴ U	38139.7 20	1778573.4 20			6843.7 23	6631.9 13
²³⁴ Np	39950 9	1775981 9		1810 8	(6270)	4252 9
²³⁴ Pu	40338 7	1774810 7		388 11	7780 50	(5100)
²³⁴ Am	(44510)	(1769860)		(4170)	(6800)	(2820)
²³⁵ Th	44250 50	1782100 50	1930 70		4430 50	
²³⁵ Pa	42320 50	1783240 50	1410 50		6080 50	5580 50
²³⁵ U	40913.2 20	1783871.1 20			5297.84 23	6712 5
²³⁵ Np	41036.9 22	1782965.1 22		123.7 9	6984 8	4391.8 9
²³⁵ Pu	(42200)	(1781020)		(1170)	(6210)	(5040)
²³⁵ Am	(44740)	(1777700)		(2540)	(7800)	(2890)
²³⁵ Cm	(48050)	(1773610)		(3300)		(3800)
²³⁶ Pa	45340 200	1788300 200	2900 200		5050 210	6200 210
²³⁶ U	42439.8 20	1790415.9 20			6544.8 5	7170 50
²³⁶ Np	43380 50	1788690 50	490 50	940 50	5730 50	4820 50
²³⁶ Pu	42893 3	1788398 3			(7380)	5432.7 21
²³⁶ Am	(46170)	(1784340)		(3280)	(6640)	(3320)
²³⁶ Cm	(47880)	(1781840)		(1710)	(8200)	(4100)
²³⁷ Pa	47640 100	1794070 100	2250 100		5780 220	
²³⁷ U	45385.2 20	1795541.8 21	518.6 6		5125.9 5	7240 200
²³⁷ Np	44866.7 20	1795278.0 20			6580 50	4862.1 3
²³⁷ Pu	45087.0 24	1794275.4 24		220.3 13	5877.5 25	5580 50
²³⁷ Am	(46820)	(1791760)		(1730)	(7430)	(3370)
²³⁷ Cm	(49270)	(1788530)		(2500)	(6700)	(4190)
²³⁷ Bk	(53200)	(1783800)		(3900)		(2000)
²³⁸ Pa	50760 60	1799020 60	3460 60		4940 120	
²³⁸ U	47304.5 20	1801693.8 20			6152.0 14	7620 100
²³⁸ Np	47449.9 20	1800766.1 20	1292.0 7	145.3 14	5488.09 20	5224.3 6
²³⁸ Pu	46157.8 20	1801275.8 20			7000.5 15	5997.8 7
²³⁸ Am	48420 50	1798240 50		2260 50	(6470)	3960 50
²³⁸ Cm	49380 40	1796480 40		970 60	(7960)	(4720)
²³⁸ Bk	(54300)	(1790800)		(5000)	(6900)	(2200)
²³⁹ U	50569.6 20	1806500.0 21	1265.2 16		4806.26 21	7480 60
²³⁹ Np	49304.4 22	1806982.9 22	721.8 9		6216.8 10	5289.1 16
²³⁹ Pu	48582.6 20	1806922.4 20			5646.5 3	6156.2 6
²³⁹ Am	49386 3	1805337 3		802.9 20	7100 50	4061.3 20
²³⁹ Cm	(51090)	(1802860)		(1700)	(6370)	(4620)
²³⁹ Bk	(54400)	(1798800)		(3300)	(8000)	(2300)
²³⁹ Cf	(58280)	(1794090)		(3900)		(3300)
²⁴⁰ U	52708 5	1812433 5	388 16		5933 5	
²⁴⁰ Np	52320 15	1812039 15	2200 15		5056 15	5539 15
²⁴⁰ Pu	50120.5 20	1813455.8 20			6533.5 5	6472.9 9
²⁴⁰ Am	51499 14	1811295 14		1379 14	5957 14	4372 14
²⁴⁰ Cm	51715 3	1810296 3		216 14	(7440)	4959 3
²⁴⁰ Bk	(55660)	(1805570)		(3940)	(6800)	(2720)
²⁴⁰ Cf	(58030)	(1802420)		(2370)	(8300)	(3600)
²⁴¹ Np	54260 70	1818170 70	1310 70		6140 70	5740 70
²⁴¹ Pu	52950.2 20	1818697.4 20	20.81 20		5241.60 19	6659 15
²⁴¹ Am	52929.4 20	1817935.9 20			6641 14	4480.1 3
²⁴¹ Cm	53696.9 23	1816386.0 23		767.5 12	6089.8 25	5092 14
²⁴¹ Bk	(56100)	(1813200)		(2400)	(7630)	(2910)
²⁴¹ Cf	(59400)	(1809200)		(3300)	(6700)	(3600)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²⁴¹ Es	(63900)	(1803800)		(4500)		(1400)
²⁴² Np	57410.200	1823090.200	2700.200		4910.210	
²⁴² Pu	54712.1.20	1825006.8.20			6309.4.7	6830.70
²⁴² Am	55463.1.20	1823473.5.20	664.8.7	751.0.7	5537.57.10	4776.03.22
²⁴² Cm	54798.3.20	1823355.9.20			6969.9.14	5420.0.7
²⁴² Bk	(57800)	(1819570)		(3000)	(6400)	(3190)
²⁴² Cf	59330.40	1817260.40		(1530)	(8100)	(4060)
²⁴² Es	(64900)	(1810900)		(5600)	(7000)	(1700)
²⁴³ Np	59919.11	1828654.11	2170.11		5560.200	
²⁴³ Pu	57749.3	1830041.3	582.3		5034.3	6950.200
²⁴³ Am	57167.4.22	1829840.5.22			6367.0.11	4833.6.12
²⁴³ Cm	57176.3.22	1829049.3.23		8.9.14	5693.3.10	5575.8.12
²⁴³ Bk	58685.5	1826759.5		1508.5	(7190)	3403.5
²⁴³ Cf	(60900)	(1823760)		(2220)	(6500)	(4190)
²⁴³ Es	(64900)	(1819000)		(4000)	(8200)	(1800)
²⁴³ Fm	(69400)	(1813700)		(4500)		(2800)
²⁴⁴ Pu	59799.5	1836063.5			6021.4	7409.10
²⁴⁴ Am	59875.0.22	1835204.1.22	1428.1.9		5363.7.9	5163.3
²⁴⁴ Cm	58447.0.20	1835849.9.20			6800.7.11	6009.4.10
²⁴⁴ Bk	60700.50	1832810.50		2260.50	6050.50	3760.50
²⁴⁴ Cf	61469.3	1831263.3		770.50	(7500)	4504.5
²⁴⁴ Es	(66030)	(1825920)		(4560)	(6900)	(2160)
²⁴⁴ Fm	(69100)	(1822100)		(3000)	(8400)	(3100)
²⁴⁵ Pu	63097.14	1840836.14	1205.15		4773.13	
²⁴⁵ Am	61893.3	1841258.3	894.0.18		6054.3	5195.5
²⁴⁵ Cm	60999.3	1841370.3			5519.8.19	6165.5.21
²⁴⁵ Bk	61808.8.25	1839777.3		810.2.24	6970.50	3927.2.15
²⁴⁵ Cf	63377.3	1837426.3		1569.3	6163.4	4610.50
²⁴⁵ Es	(66430)	(1833590)		(3050)	(7700)	(2330)
²⁴⁵ Fm	(70200)	(1829000)		(3800)	(6900)	(3100)
²⁴⁶ Pu	65389.15	1846616.15	401.14		5780.20	
²⁴⁶ Am	64988.18	1846234.18	2376.18		4976.18	5398.23
²⁴⁶ Cm	62611.8.22	1847827.6.23			6458.0.22	6570.3
²⁴⁶ Bk	63960.60	1845700.60		1350.60	5920.60	4330.60
²⁴⁶ Cf	64084.8.22	1844790.0.23		120.60	7364.3	5012.9.19
²⁴⁶ Es	(67970)	(1840130)		(3880)	(6500)	(2700)
²⁴⁶ Fm	70120.40	1837190.40		(2160)	(8200)	(3600)
²⁴⁷ Am	(67230)	(1852070)	(1700)		(5830)	(5450)
²⁴⁷ Cm	65527.4	1852984.4	45.7		5156.4	6750.18
²⁴⁷ Bk	65482.6	1852247.6			6550.60	4419.5
²⁴⁷ Cf	66128.8	1850818.8		646.6	6028.8	5120.60
²⁴⁷ Es	(68600)	(1847560)		(2480)	(7430)	(2770)
²⁴⁷ Fm	(71520)	(1843860)		(2910)	(6680)	(3700)
²⁴⁷ Md	(76100)	(1838500)		(4600)		(1300)
²⁴⁸ Am	(70490)	(1856880)	(3100)		(4810)	
²⁴⁸ Cm	67385.5	1859197.5			6213.5	(7130)
²⁴⁸ Bk	68103.21	1857697.21	870.20	717.21	5451.21	4713.21
²⁴⁸ Cf	67233.5	1857785.5			6967.9	5538.7
²⁴⁸ Es	70290.60	1853940.60		3060.60	(6380)	3120.60
²⁴⁸ Fm	71896.12	1851556.12		1600.60	(7690)	(4000)
²⁴⁸ Md	(77150)	(1845520)		(5250)	(7000)	(1700)
²⁴⁹ Cm	70743.5	1863910.5	900.5		4713.5.3	(7030)
²⁴⁹ Bk	69843.3	1864028.3	124.9.14		6331.21	4831.5
²⁴⁹ Cf	69719.3	1863370.3			5585.5	5673.21
²⁴⁹ Es	(71170)	(1861140)		(1450)	(7200)	(3350)
²⁴⁹ Fm	(73610)	(1857910)		(2440)	(6360)	(3970)
²⁴⁹ Md	(77300)	(1853400)		(3700)	(7900)	(1900)
²⁵⁰ Cm	72982.11	1869743.11	37.12		5832.10	
²⁵⁰ Bk	72945.4	1868998.4	1780.3		4970.4	5088.6
²⁵⁰ Cf	71165.1.22	1869995.0.23			6624.7.23	5967.3
²⁵⁰ Es	(73270)	(1867110)		(2100)	(5980)	(3740)
²⁵⁰ Fm	74067.12	1865529.12		(800)	(7610)	(4390)
²⁵⁰ Md	(78700)	(1860100)		(4600)	(6700)	(2200)
²⁵¹ Cm	76640.23	1874156.23	1420.20		4413.25	
²⁵¹ Bk	75220.11	1874793.11	1093.10		5796.11	5051.15
²⁵¹ Cf	74127.5	1875104.5			5109.4	6106.5
²⁵¹ Es	74504.6	1873946.6		376.7	(6830)	3950.6
²⁵¹ Fm	75978.8	1871689.8		1474.7	6160.14	(4580)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²⁵¹ Md	(79050)	(1867830)		(3070)	(7700)	(2310)
²⁵¹ No	(82830)	(1863280)		(3780)		(3200)
²⁵² Bk	(78530)	(1879560)	(2500)		(4770)	(5400)
²⁵² Cf	76027 5	1881276 5			6172 5	6482 11
²⁵² Es	77290 50	1879230 50	480 50	1260 50	5290 50	4130 50
²⁵² Fm	76810 6	1878928 6			7239 10	4982 8
²⁵² Md	(80700)	(1874260)		(3890)	(6400)	(2570)
²⁵² No	82871 13	1871303 13		(2180)	(8030)	(3470)
²⁵³ Bk	(80800)	(1885400)	(1500)		(5800)	
²⁵³ Cf	79293 7	1886081 7	285 7		4806 5	(6520)
²⁵³ Es	79007 3	1885584 3			6350 50	4309 5
²⁵³ Fm	79340 5	1884469 5		333 4	5541 7	5240 50
²⁵³ Md	(81300)	(1881730)		(1960)	(7500)	(2800)
²⁵³ No	(84480)	(1877770)		(3200)	(6460)	(3500)
²⁵³ Lr	(88700)	(1872700)		(4300)		(1400)
²⁵⁴ Cf	81334 12	1892112 12			6030 12	(6800)
²⁵⁴ Es	81988 5	1890675 5	1090 4		5091 5	4594 8
²⁵⁴ Fm	80897 3	1890984 3			6514 5	5399 3
²⁵⁴ Md	(83580)	(1887520)		(2680)	(5790)	(3050)
²⁵⁴ No	84717 18	1885599 18		(1140)	(7830)	(3870)
²⁵⁴ Lr	(89900)	(1879700)		(5200)	(6900)	(1900)
²⁵⁵ Cf	(84780)	(1896740)	(700)		(4620)	
²⁵⁵ Es	84081 11	1896653 11	288 10		5978 12	4542 16
²⁵⁵ Fm	83793 5	1896159 5			5176 5	5484 6
²⁵⁵ Md	84835 7	1894334 7		1042 8	(6820)	3351 7
²⁵⁵ No	86847 12	1891540 12		2012 12	5941 21	(4020)
²⁵⁵ Lr	(90090)	(1887520)		(3240)	(7900)	(1920)
²⁵⁵ Rf	(94550)	(1882270)		(4500)		(2600)
²⁵⁶ Es	(87150)	(1901660)	(1670)		(5000)	(4920)
²⁵⁶ Fm	85479 7	1902544 7			6385 7	5891 12
²⁵⁶ Md	87610 50	1899630 50		2130 50	5300 50	3470 50
²⁵⁶ No	87817 8	1898642 8		210 50	7102 14	4308 10
²⁵⁶ Lr	(92010)	(1893670)		(4190)	(6200)	(2130)
²⁵⁶ Rf	94250 30	1890650 30		(2240)	(8370)	(3130)
²⁵⁷ Es	(89400)	(1907500)	(800)		(5800)	
²⁵⁷ Fm	88581 7	1907513 7			4969 7	(5860)
²⁵⁷ Md	88990 3	1906322 3		409 8	6690 50	3778 7
²⁵⁷ No	90220 30	1904310 30		1230 30	5670 30	4680 60
²⁵⁷ Lr	(92730)	(1901020)		(2520)	(7300)	(2370)
²⁵⁷ Rf	(96200)	(1896800)		(3400)	(6200)	(3100)
²⁵⁷ Ha	(100500)	(1891700)		(4300)		(1100)
²⁵⁸ Fm	(90460)	(1913710)			(6190)	(6200)
²⁵⁸ Md	91684 5	1911700 5	(160)		5378 5	4187 8
²⁵⁸ No	(91520)	(1911080)			(6770)	(4760)
²⁵⁸ Lr	(94910)	(1906910)		(3380)	(5900)	(2600)
²⁵⁸ Rf	(96390)	(1904640)		(1490)	(7800)	(3600)
²⁵⁸ Ha	(101800)	(1898400)		(5400)	(6700)	(1600)
²⁵⁹ Fm	(93700)	(1918500)	(100)		(4800)	
²⁵⁹ Md	(93600)	(1917800)			(6100)	(4100)
²⁵⁹ No	(94120)	(1916550)		(500)	(5470)	(4850)
²⁵⁹ Lr	(95930)	(1913960)		(1810)	(7040)	(2880)
²⁵⁹ Rf	(98380)	(1910730)		(2450)	(6080)	(3810)
²⁵⁹ Ha	(102200)	(1906100)		(3800)	(7700)	(1500)
²⁵⁹ Sg	(106850)	(1900700)		(4600)		(2300)
²⁶⁰ Md	(96600)	(1922900)	(1000)		(5100)	(4400)
²⁶⁰ No	(95600)	(1923140)			(6590)	(5300)
²⁶⁰ Lr	(98340)	(1919620)		(2740)	(5670)	(3070)
²⁶⁰ Rf	(99240)	(1917940)		(900)	(7210)	(3980)
²⁶⁰ Ha	(103800)	(1912600)		(4600)	(6500)	(1870)
²⁶⁰ Sg	106600 40	1909020 40		(2800)	(8320)	(2900)
²⁶¹ Md	(98400)	(1929200)			(6300)	
²⁶¹ No	(98500)	(1928300)			(5200)	(5400)
²⁶¹ Lr	(99600)	(1926400)		(1100)	(6800)	(3300)
²⁶¹ Rf	(101450)	(1923800)		(1800)	(5860)	(4180)
²⁶¹ Ha	(104400)	(1920000)		(3000)	(7400)	(2100)
²⁶¹ Sg	(108400)	(1915300)		(4000)	(6300)	(2700)
²⁶¹ Ns	(113400)	(1909500)		(5100)		(400)

Isotope	Mass Excess	Binding Energy	Q_{β^-}	Q_{EC}	S_n	S_p
²⁶² No	(100200)	(1934700)			(6400)	(5500)
²⁶² Lr	(102300)	(1931800)			(5400)	(3500)
²⁶² Rf	(102550)	(1930770)		(300)	(7000)	(4400)
²⁶² Ha	(106540)	(1926010)		(4000)	(6000)	(2200)
²⁶² Sg	(108600)	(1923150)		(2100)	(7900)	(3100)
²⁶² Ns	(114700)	(1916300)		(6100)	(6800)	(1000)
²⁶³ No	(103200)	(1939800)			(5100)	
²⁶³ Lr	(103800)	(1938400)			(6600)	(3700)
²⁶³ Rf	(105000)	(1936400)		(1200)	(5600)	(4600)
²⁶³ Ha	(107390)	(1933220)		(2400)	(7200)	(2400)
²⁶³ Sg	(110500)	(1929330)		(3100)	(6200)	(3300)
²⁶³ Ns	(114900)	(1924200)		(4400)	(7900)	(1000)
²⁶⁴ Lr	(106500)	(1943700)	(200)		(5300)	(4000)
²⁶⁴ Rf	(106300)	(1943200)			(6800)	(4800)
²⁶⁴ Ha	(109600)	(1939100)		(3300)	(5800)	(2700)
²⁶⁴ Sg	(111100)	(1936800)		(1500)	(7500)	(3600)
²⁶⁴ Ns	(116400)	(1930800)		(5300)	(6600)	(1400)
²⁶⁴ Hs	119800 <i>300</i>	1926500 <i>300</i>		(3500)		(2300)
²⁶⁵ Lr	(108200)	(1950100)			(6400)	
²⁶⁵ Rf	(108800)	(1948700)			(5600)	(5000)
²⁶⁵ Ha	(110700)	(1946100)		(1900)	(7000)	(2900)
²⁶⁵ Sg	(113100)	(1942900)		(2400)	(6100)	(3800)
²⁶⁵ Ns	(116800)	(1938400)		(3700)	(7600)	(1600)
²⁶⁵ Hs	(121600)	(1932800)		(4800)	(6300)	(2000)
²⁶⁶ Rf	(110400)	(1955200)			(6500)	(5100)
²⁶⁶ Ha	(113000)	(1951800)			(5800)	(3100)
²⁶⁶ Sg	(114000)	(1950000)		(1000)	(7100)	(4000)
²⁶⁶ Ns	(118700)	(1944500)		(4700)	(6200)	(1700)
²⁶⁶ Hs	(121700)	(1940800)		(3000)	(8000)	(2400)
²⁶⁶ Mt	(128400)	(1933300)		(6700)		(500)