E. Comay, I. Kelson, and A. Zidon Masses

† Nuclide is unstable to one-particle emission
‡ Nuclide is unstable to two-particle, but not one particle emission

Isotope	Mass Excess
^{7}He	26.100±0.200
^{8}He	30.610±0.920
^{9}He	41.470±0.840 †
^{10}He	50.230±0.880 †
^{11}He	64.820±0.970 †
^{12}He	75.090±0.990 †
^{13}He	88.870±1.030 †
^{14}He	98.060±1.090 †
^{7}Li	14.920±0.200
^{8}Li	21.020±0.200
^{9}Li	24.940±0.200
^{10}Li	33.750±0.200 †
^{11}Li	41.160±0.260 ‡
^{12}Li	53.140±0.320 †
^{13}Li	61.770±0.420 †
^{14}Li	72.290±0.500 †
^{15}Li	81.260±0.540 †
^{16}Li	93.640±0.580 †
^{17}Li	102.600±0.740 †
^{7}Be	15.820±0.200
^{8}Be	5.310±0.720
^{9}Be	10.820±0.780
^{10}Be	12.690±0.200
^{11}Be	20.160±0.200
^{12}Be	24.950±0.200
^{13}Be	35.300±0.220 †
^{14}Be	40.670±0.340
^{15}Be	50.970±0.370 †
^{16}Be	58.560±0.350 ‡
^{17}Be	69.380±0.460 †
^{18}Be	76.210±0.630 ‡
^{19}Be	87.110±0.960 †
^{20}Be	95.270±1.180 †
^{21}Be	107.970±1.550 †
^{22}Be	118.050±1.850 †
^{8}B	23.100±0.810
^{9}B	12.000±0.780
^{11}B	8.550±0.260
^{12}B	13.400±0.200
^{13}B	16.560±0.200
^{14}B	23.650±0.200
^{15}B	28.800±0.210
^{16}B	37.720±0.200 †
^{17}B	43.750±0.200
^{18}B	52.450±0.330 †
^{19}B	58.120±0.530
^{20}B	66.600±0.770 †
^{21}B	74.270±1.150 ‡
^{22}B	85.220±1.350 †
^{23}B	94.950±1.710 †
^{24}B	108.370±2.040 †
^{25}B	120.380±2.440 †
^{9}C	28.920±1.080
^{10}C	15.760±0.810
^{11}C	10.440±0.280
^{12}C	-0.090±0.200
^{13}C	3.130±0.200
^{14}C	3.020±0.200
^{15}C	9.890±0.200
^{16}C	13.660±0.200
^{17}C	21.030±0.200
^{18}C	24.930±0.200
^{19}C	32.470±0.310
^{20}C	35.720±0.400
^{21}C	43.710±0.790
^{22}C	49.630±0.970
^{23}C	60.240±1.230 †
^{24}C	68.480±1.500 †
^{25}C	81.740±1.880 †

Isotope	Mass Excess
^{26}C	91.980±2.170 †
^{27}C	107.130±2.520 †
^{28}C	118.910±2.770 †
^{10}N	39.890±1.050 †
^{11}N	25.390±0.730 †
^{12}N	17.460±0.350
^{13}N	5.290±0.200
^{15}N	0.170±0.200
^{16}N	5.660±0.200
^{17}N	7.870±0.200
^{18}N	13.110±0.200
^{19}N	15.860±0.200
^{20}N	20.970±0.210
^{21}N	23.740±0.430
^{22}N	29.980±0.610
^{23}N	35.560±0.860
^{24}N	44.670±1.020 †
^{25}N	52.750±1.340 †
^{26}N	64.240±1.600 †
^{27}N	73.490±1.900 †
^{28}N	87.130±2.170 †
^{29}N	98.410±2.600 †
^{30}N	111.790±2.880 †
^{31}N	122.900±3.230 †
^{11}O	50.120±0.980 †
^{12}O	33.010±0.720 †
^{13}O	23.450±0.300
^{14}O	8.020±0.250
^{15}O	3.000±0.200
^{16}O	-4.770±0.200
^{17}O	-0.840±0.200
^{18}O	-0.750±0.200
^{19}O	3.330±0.200
^{20}O	3.650±0.250
^{21}O	8.280±0.240
^{22}O	9.300±0.280
^{23}O	15.200±0.520
^{24}O	19.280±0.670
^{25}O	28.240±0.870 †
^{26}O	34.550±1.040
^{27}O	45.050±1.340 †
^{28}O	52.780±1.580 ‡
^{29}O	65.930±2.020 †
^{30}O	75.270±2.280 †
^{31}O	88.120±2.590 †
^{32}O	97.400±2.800 †
^{33}O	109.960±3.030 †
^{34}O	119.600±3.190 †
^{12}F	64.970±0.930 †
^{13}F	46.220±0.630 †
^{14}F	33.400±0.410 †
^{15}F	17.750±0.320 †
^{16}F	11.350±0.280 †
^{17}F	2.030±0.200
^{19}F	-1.550±0.200
^{20}F	0.110±0.200
^{21}F	-0.060±0.200
^{22}F	2.820±0.200
^{23}F	3.490±0.200
^{24}F	7.900±0.470
^{25}F	11.820±0.570
^{26}F	19.010±0.600
^{27}F	24.330±0.830
^{28}F	33.320±1.070 †
^{29}F	40.560±1.460 ‡
^{30}F	51.760±1.730 †
^{31}F	60.570±2.030 †
^{32}F	71.600±2.190 †
^{33}F	80.090±2.450 †
^{34}F	91.030±2.590 †

Isotope	Mass Excess
^{35}F	99.960±2.720 †
^{36}F	110.910±2.970 †
^{37}F	119.720±3.110 †
^{38}F	131.450±3.340 †
^{39}F	142.260±3.520 †
^{13}Ne	76.950±0.850 †
^{14}Ne	54.940±0.680 †
^{15}Ne	41.900±0.500 †
^{16}Ne	24.870±0.440 ‡
^{17}Ne	16.920±0.360
^{18}Ne	5.470±0.290
^{19}Ne	1.800±0.220
^{20}Ne	-6.980±0.250
^{21}Ne	-5.810±0.230
^{22}Ne	-7.720±0.320
^{23}Ne	-5.180±0.200
^{24}Ne	-6.010±0.270
^{25}Ne	-1.760±0.350
^{26}Ne	0.400±0.270
^{27}Ne	6.600±0.450
^{28}Ne	10.400±0.640
^{29}Ne	18.900±1.000 †
^{30}Ne	24.190±1.220
^{31}Ne	34.870±1.520 †
^{32}Ne	41.850±1.660 ‡
^{33}Ne	52.090±1.890 †
^{34}Ne	58.960±2.050 ‡
^{35}Ne	69.200±2.150 †
^{36}Ne	76.690±2.390 ‡
^{37}Ne	86.960±2.500 †
^{38}Ne	94.110±2.760 ‡
^{39}Ne	105.580±2.920 †
^{40}Ne	114.810±3.000 †
^{41}Ne	127.190±3.170 †
^{42}Ne	136.980±3.380 †
^{43}Ne	150.190±3.580 †
^{44}Ne	160.270±3.760 †
^{16}Na	54.420±0.630 †
^{17}Na	35.840±0.540 †
^{18}Na	25.760±0.470 †
^{19}Na	13.150±0.390 †
^{20}Na	7.060±0.320
^{21}Na	-2.200±0.250
^{23}Na	-9.440±0.280
^{24}Na	-8.400±0.200
^{25}Na	-9.380±0.200
^{26}Na	-6.900±0.200
^{27}Na	-5.740±0.290
^{28}Na	-1.050±0.420
^{29}Na	2.260±0.640
^{30}Na	8.810±0.800
^{31}Na	13.580±1.070
^{32}Na	22.420±1.200 †
^{33}Na	28.620±1.410
^{34}Na	37.240±1.550 †
^{35}Na	43.420±1.680
^{36}Na	52.210±1.860 †
^{37}Na	59.030±1.980
^{38}Na	67.640±2.190 †
^{39}Na	74.520±2.380
^{40}Na	84.420±2.430 †
^{41}Na	93.290±2.560 †
^{42}Na	104.280±2.750 †
^{43}Na	113.660±2.950 †
^{44}Na	125.150±3.140 †
^{45}Na	135.070±3.280 †
^{46}Na	147.330±3.440 †
^{47}Na	157.450±3.510 †
^{16}Mg	80.490±0.860 †
^{17}Mg	64.510±0.750 †

Isotope	Mass Excess
^{18}Mg	43.800±0.660 †
^{19}Mg	32.560±0.580 ‡
^{20}Mg	17.520±0.500
^{21}Mg	10.950±0.430
^{22}Mg	-0.060±0.360
^{23}Mg	-5.390±0.300
^{24}Mg	-14.190±0.370
^{25}Mg	-13.310±0.320
^{26}Mg	-16.060±0.270
^{27}Mg	-14.560±0.200
^{28}Mg	-14.910±0.390
^{29}Mg	-10.730±0.430
^{30}Mg	-9.360±0.440
^{31}Mg	-3.330±0.690
^{32}Mg	-0.390±0.750
^{33}Mg	7.670±0.950
^{34}Mg	12.250±1.070
^{35}Mg	20.170±1.180
^{36}Mg	24.900±1.390
^{37}Mg	33.010±1.440 †
^{38}Mg	38.170±1.680
^{39}Mg	46.520±1.840 †
^{40}Mg	51.830±1.930
^{41}Mg	61.370±2.030 †
^{42}Mg	68.850±2.190 ‡
^{43}Mg	79.430±2.370 †
^{44}Mg	87.090±2.560 ‡
^{45}Mg	98.420±2.710 †
^{46}Mg	106.930±2.880 †
^{47}Mg	118.850±2.910 †
^{48}Mg	128.050±3.220 †
^{49}Mg	140.760±3.470 †
^{50}Mg	150.570±3.660 †
^{51}Mg	164.010±3.800 †
^{52}Mg	174.600±3.980 †
^{53}Mg	188.510±4.160 †
^{54}Mg	199.250±4.320 †
^{20}Al	41.960±0.720 †
^{21}Al	26.440±0.640 †
^{22}Al	18.120±0.560
^{23}Al	6.760±0.480
^{24}Al	-0.060±0.390
^{25}Al	-9.020±0.330
^{27}Al	-17.230±0.320
^{28}Al	-17.260±0.380
^{29}Al	-18.100±0.330
^{30}Al	-15.850±0.200
^{31}Al	-15.010±0.330
^{32}Al	-10.810±0.350
^{33}Al	-8.660±0.500
^{34}Al	-2.220±0.590
^{35}Al	1.660±0.690
^{36}Al	8.140±0.910
^{37}Al	12.190±0.980
^{38}Al	18.650±1.140
^{39}Al	23.540±1.340
^{40}Al	30.310±1.390
^{41}Al	35.270±1.550
^{42}Al	43.420±1.680 †
^{43}Al	50.490±1.830
^{44}Al	59.350±1.990 †
^{45}Al	66.850±2.140 ‡
^{46}Al	76.770±2.320 †
^{47}Al	84.940±2.380 †
^{48}Al	95.950±2.630 †
^{49}Al	104.730±2.880 †
^{50}Al	116.550±3.010 †
^{51}Al	126.180±3.230 †
^{52}Al	138.520±3.360 †
^{53}Al	148.750±3.530 †
^{54}Al	161.570±3.720 †

Isotope	Mass Excess
^{55}Al	172.000±3.920 †
^{19}Si	87.890±1.060 †
^{20}Si	63.590±0.970 †
^{21}Si	49.440±0.880 †
^{22}Si	32.180±0.790 ‡
^{23}Si	23.510±0.690
^{24}Si	10.660±0.590
^{25}Si	3.680±0.500
^{26}Si	-7.050±0.390
^{27}Si	-12.510±0.330
^{28}Si	-21.370±0.380
^{29}Si	-21.890±0.280
^{30}Si	-24.670±0.310
^{31}Si	-22.950±0.200
^{32}Si	-23.940±0.300
^{33}Si	-20.530±0.250
^{34}Si	-19.990±0.280
^{35}Si	-14.260±0.360
^{36}Si	-11.820±0.510
^{37}Si	-6.020±0.630
^{38}Si	-3.620±0.800
^{39}Si	2.570±0.870
^{40}Si	5.890±0.990
^{41}Si	12.300±1.060
^{42}Si	15.870±1.270
^{43}Si	23.610±1.400
^{44}Si	28.960±1.520
^{45}Si	37.660±1.630 †
^{46}Si	43.750±1.800
^{47}Si	53.340±1.870 †
^{48}Si	60.590±2.150 ‡
^{49}Si	71.180±2.360 †
^{50}Si	79.070±2.470 ‡
^{51}Si	90.710±2.650 †
^{52}Si	99.240±2.850 †
^{53}Si	111.230±2.980 †
^{54}Si	120.380±3.150 †
^{55}Si	132.880±3.370 †
^{56}Si	142.290±3.550 †
^{57}Si	155.230±3.750 †
^{58}Si	165.020±3.870 †
^{59}Si	178.070±3.980 †
^{60}Si	188.050±4.070 †
^{22}P	60.650±1.050 †
^{23}P	43.030±0.940 †
^{24}P	32.870±0.820 †
^{25}P	19.860±0.710 †
^{26}P	11.110±0.580 †
^{27}P	-0.600±0.500
^{28}P	-7.590±0.390
^{29}P	-16.930±0.290
^{31}P	-24.440±0.280
^{32}P	-24.550±0.270
^{33}P	-26.320±0.200
^{34}P	-24.520±0.200
^{35}P	-24.690±0.330
^{36}P	-20.400±0.250
^{37}P	-18.640±0.320
^{38}P	-14.500±0.520
^{39}P	-12.360±0.600
^{40}P	-7.750±0.580
^{41}P	-4.780±0.710
^{42}P	0.240±0.830
^{43}P	3.400±1.020
^{44}P	9.420±1.110
^{45}P	14.610±1.200
^{46}P	21.900±1.340
^{47}P	27.660±1.400
^{48}P	36.320±1.690 †
^{49}P	43.150±1.930
^{50}P	52.860±2.000 †

Isotope	Mass Excess
^{51}P	60.570±2.170 ‡
^{52}P	71.120±2.340 †
^{53}P	79.290±2.540 †
^{54}P	90.180±2.680 †
^{55}P	99.010±2.880 †
^{56}P	110.510±3.080 †
^{57}P	119.670±3.300 †
^{58}P	131.470±3.380 †
^{59}P	140.960±3.520 †
^{60}P	152.840±3.600 †
^{61}P	162.700±3.840 †
^{23}S	71.590±1.230 †
^{24}S	52.480±1.090 †
^{25}S	42.160±0.950 †
^{26}S	27.390±0.810 †
^{27}S	17.650±0.690
^{28}S	4.420±0.560
^{29}S	-3.060±0.460
^{30}S	-14.350±0.360
^{31}S	-19.070±0.300
^{32}S	-25.780±0.340
^{33}S	-26.680±0.270
^{34}S	-30.070±0.230
^{35}S	-28.980±0.280
^{36}S	-30.590±0.250
^{37}S	-26.970±0.330
^{38}S	-26.870±0.330
^{39}S	-22.990±0.400
^{40}S	-22.430±0.360
^{41}S	-18.170±0.400
^{42}S	-16.590±0.550
^{43}S	-11.990±0.670
^{44}S	-10.540±0.790
^{45}S	-4.690±0.860
^{46}S	-0.900±0.990
^{47}S	6.050±1.020
^{48}S	10.890±1.280
^{49}S	19.130±1.510 †
^{50}S	25.080±1.620
^{51}S	34.600±1.740 †
^{52}S	41.220±1.910
^{53}S	51.410±2.070 †
^{54}S	58.490±2.280 ‡
^{55}S	69.070±2.460 †
^{56}S	76.890±2.630 ‡
^{57}S	88.130±2.880 †
^{58}S	96.160±2.960 ‡
^{59}S	107.650±3.070 †
^{60}S	115.980±3.170 †
^{61}S	127.730±3.400 †
^{62}S	136.410±3.540 †
^{63}S	148.180±3.670 †
^{64}S	156.820±3.770 †
^{65}S	168.880±3.910 †
^{66}S	177.830±4.040 †
^{67}S	191.400±4.180 †
^{68}S	203.170±4.310 †
^{26}Cl	54.950±1.070 †
^{27}Cl	39.180±0.930 †
^{28}Cl	27.930±0.770 †
^{29}Cl	14.200±0.640 †
^{30}Cl	4.780±0.540 †
^{31}Cl	-7.030±0.460 †
^{32}Cl	-13.580±0.360
^{33}Cl	-21.080±0.290
^{35}Cl	-29.100±0.310
^{36}Cl	-29.450±0.330
^{37}Cl	-31.740±0.270
^{38}Cl	-29.780±0.200
^{39}Cl	-29.940±0.230
^{40}Cl	-27.640±0.280

Isotope	Mass Excess
^{41}Cl	-27.440±0.230
^{42}Cl	-24.560±0.330
^{43}Cl	-23.400±0.440
^{44}Cl	-20.500±0.540
^{45}Cl	-19.230±0.600
^{46}Cl	-14.780±0.690
^{47}Cl	-11.330±0.720
^{48}Cl	-5.300±0.910
^{49}Cl	-0.880±1.120
^{50}Cl	6.480±1.210
^{51}Cl	12.240±1.390
^{52}Cl	20.680±1.490 †
^{53}Cl	26.930±1.660
^{54}Cl	36.030±1.820 †
^{55}Cl	42.800±2.090
^{56}Cl	52.370±2.230 †
^{57}Cl	59.940±2.440 ‡
^{58}Cl	70.040±2.540 †
^{59}Cl	77.770±2.660 ‡
^{60}Cl	88.090±2.730 †
^{61}Cl	96.290±2.990 †
^{62}Cl	106.870±3.110 †
^{63}Cl	115.390±3.240 †
^{64}Cl	125.790±3.330 †
^{65}Cl	134.540±3.450 †
^{66}Cl	145.230±3.600 †
^{67}Cl	154.200±3.700 †
^{68}Cl	166.890±3.840 †
^{69}Cl	178.440±3.940 †
^{27}Ar	66.270±1.210 †
^{28}Ar	48.980±1.010 †
^{29}Ar	37.230±0.860 †
^{30}Ar	21.570±0.740 †
^{31}Ar	11.620±0.640 ‡
^{32}Ar	-2.020±0.530
^{33}Ar	-9.360±0.460
^{34}Ar	-18.480±0.390
^{35}Ar	-23.110±0.330
^{36}Ar	-29.990±0.460
^{37}Ar	-31.020±0.330
^{38}Ar	-34.960±0.300
^{39}Ar	-33.260±0.320
^{40}Ar	-35.010±0.340
^{41}Ar	-33.060±0.270
^{42}Ar	-34.250±0.300
^{43}Ar	-31.780±0.390
^{44}Ar	-32.340±0.430
^{45}Ar	-29.610±0.400
^{46}Ar	-29.740±0.490
^{47}Ar	-25.620±0.550
^{48}Ar	-23.100±0.690
^{49}Ar	-17.480±0.800
^{50}Ar	-13.950±0.890
^{51}Ar	-6.770±1.050
^{52}Ar	-2.100±1.220
^{53}Ar	5.970±1.320
^{54}Ar	11.140±1.470
^{55}Ar	19.920±1.670 †
^{56}Ar	25.680±1.910
^{57}Ar	35.000±2.100 †
^{58}Ar	41.430±2.120
^{59}Ar	51.230±2.280 †
^{60}Ar	57.790±2.340 ‡
^{61}Ar	67.990±2.580 †
^{62}Ar	75.010±2.740 ‡
^{63}Ar	85.420±2.840 †
^{64}Ar	92.580±2.930 ‡
^{65}Ar	103.090±3.040 †
^{66}Ar	110.470±3.150 ‡
^{67}Ar	121.180±3.280 †
^{68}Ar	129.270±3.380 †
^{69}Ar	141.750±3.490 †
^{70}Ar	152.300±3.620 †
^{71}Ar	165.190±3.790 †
^{72}Ar	176.070±3.970 †

Isotope	Mass Excess
^{73}Ar	189.250±4.070 †
^{74}Ar	200.310±4.180 †
^{30}K	50.000±0.970 †
^{31}K	33.800±0.850 †
^{32}K	22.030±0.730 †
^{33}K	7.600±0.640 †
^{34}K	-1.360±0.570 †
^{35}K	-11.180±0.490 †
^{36}K	-17.250±0.400
^{37}K	-24.810±0.350
^{39}K	-33.550±0.460
^{40}K	-33.430±0.330
^{41}K	-35.530±0.260
^{42}K	-34.970±0.290
^{43}K	-36.570±0.320
^{44}K	-35.820±0.350
^{45}K	-36.540±0.290
^{46}K	-35.220±0.400
^{47}K	-35.690±0.480
^{48}K	-32.490±0.480
^{49}K	-30.380±0.620
^{50}K	-25.650±0.620
^{51}K	-22.300±0.760
^{52}K	-16.220±0.880
^{53}K	-11.910±1.040
^{54}K	-4.930±1.110
^{55}K	-0.070±1.330
^{56}K	7.700±1.510
^{57}K	13.210±1.790
^{58}K	21.390±1.800 †
^{59}K	27.520±1.880
^{60}K	36.150±1.970 †
^{61}K	42.580±2.220
^{62}K	51.600±2.340 †
^{63}K	58.460±2.480
^{64}K	67.520±2.550 †
^{65}K	74.780±2.660 ‡
^{66}K	83.930±2.770 †
^{67}K	91.320±2.850 ‡
^{68}K	101.150±2.980 †
^{69}K	109.030±3.060 ‡
^{70}K	120.500±3.200 †
^{71}K	130.920±3.350 †
^{72}K	142.730±3.540 †
^{73}K	153.510±3.690 †
^{74}K	165.590±3.720 †
^{75}K	176.490±3.880 †
^{29}Ca	95.280±1.390 †
^{30}Ca	75.570±1.230 †
^{31}Ca	61.350±1.100 †
^{32}Ca	43.320±0.960 †
^{33}Ca	30.760±0.860 †
^{34}Ca	14.720±0.770 ‡
^{35}Ca	5.060±0.690
^{36}Ca	-6.200±0.590
^{37}Ca	-12.950±0.550
^{38}Ca	-22.170±0.510
^{39}Ca	-26.970±0.470
^{40}Ca	-34.900±0.440
^{41}Ca	-35.130±0.340
^{42}Ca	-38.620±0.290
^{43}Ca	-38.470±0.370
^{44}Ca	-41.790±0.450
^{45}Ca	-41.200±0.540
^{46}Ca	-43.330±0.520
^{47}Ca	-42.340±0.650
^{48}Ca	-43.730±0.480
^{49}Ca	-40.950±0.490
^{50}Ca	-39.730±0.410
^{51}Ca	-35.180±0.430
^{52}Ca	-32.920±0.590
^{53}Ca	-27.200±0.720
^{54}Ca	-23.980±0.860
^{55}Ca	-17.310±0.990

Isotope	Mass Excess
^{56}Ca	-13.470±1.180
^{57}Ca	-5.950±1.390
^{58}Ca	-1.580±1.500
^{59}Ca	6.300±1.570
^{60}Ca	11.260±1.580
^{61}Ca	19.770±1.880 †
^{62}Ca	25.020±1.980
^{63}Ca	33.880±2.110 †
^{64}Ca	39.380±2.210
^{65}Ca	48.540±2.310 †
^{66}Ca	54.440±2.400
^{67}Ca	63.600±2.470 †
^{68}Ca	70.120±2.550
^{69}Ca	79.730±2.660 †
^{70}Ca	86.600±2.770 ‡
^{71}Ca	97.940±2.930 †
^{72}Ca	107.280±3.090 †
^{73}Ca	118.990±3.260 †
^{74}Ca	128.680±3.320 †
^{75}Ca	140.600±3.400 †
^{76}Ca	150.400±3.510 †
^{77}Ca	163.060±3.650 †
^{78}Ca	173.500±3.770 †
^{79}Ca	186.600±3.890 †
^{80}Ca	197.210±4.050 †
^{33}Sc	57.890±1.110 †
^{34}Sc	43.710±1.010 †
^{35}Sc	26.950±0.910 †
^{36}Sc	15.860±0.820 †
^{37}Sc	3.920±0.780 †
^{38}Sc	-4.490±0.740 †
^{39}Sc	-13.970±0.660 †
^{40}Sc	-20.350±0.510
^{41}Sc	-28.630±0.350
^{43}Sc	-36.180±0.430
^{44}Sc	-37.750±0.340
^{45}Sc	-41.230±0.430
^{46}Sc	-42.050±0.590
^{47}Sc	-44.520±0.640
^{48}Sc	-44.450±0.540
^{49}Sc	-46.250±0.460
^{50}Sc	-44.370±0.400
^{51}Sc	-43.320±0.480
^{52}Sc	-39.870±0.490
^{53}Sc	-37.970±0.610
^{54}Sc	-33.330±0.650
^{55}Sc	-30.430±0.860
^{56}Sc	-24.770±0.960
^{57}Sc	-21.180±1.150
^{58}Sc	-14.800±1.180
^{59}Sc	-10.730±1.330
^{60}Sc	-4.020±1.330
^{61}Sc	0.820±1.530
^{62}Sc	8.150±1.670
^{63}Sc	13.240±1.780
^{64}Sc	20.740±1.860
^{65}Sc	26.340±1.990
^{66}Sc	34.130±2.060
^{67}Sc	40.050±2.120
^{68}Sc	48.330±2.200 †
^{69}Sc	54.630±2.260
^{70}Sc	63.240±2.410 †
^{71}Sc	69.980±2.540
^{72}Sc	80.250±2.710 †
^{73}Sc	89.480±2.850 †
^{74}Sc	100.090±2.920 †
^{75}Sc	109.620±3.030 †
^{76}Sc	120.430±3.080 †
^{77}Sc	130.350±3.250 †
^{78}Sc	142.110±3.340 †
^{79}Sc	152.460±3.480 †
^{80}Sc	164.720±3.630 †
^{81}Sc	175.070±3.740 †
^{31}Ti	128.670±1.650 †

Isotope	Mass Excess
^{32}Ti	106.590±1.480 †
^{33}Ti	89.760±1.370 †
^{34}Ti	69.330±1.270 †
^{35}Ti	54.450±1.170 †
^{36}Ti	36.260±1.060 †
^{37}Ti	24.480±1.030 †
^{38}Ti	10.890±0.990 ‡
^{39}Ti	2.210±0.880 ‡
^{40}Ti	-8.850±0.690
^{41}Ti	-15.580±0.540
^{42}Ti	-25.250±0.480
^{43}Ti	-29.310±0.440
^{44}Ti	-37.260±0.530
^{45}Ti	-38.990±0.460
^{46}Ti	-43.880±0.470
^{47}Ti	-45.040±0.510
^{48}Ti	-48.420±0.530
^{49}Ti	-48.780±0.410
^{50}Ti	-51.470±0.430
^{51}Ti	-49.760±0.450
^{52}Ti	-49.810±0.440
^{53}Ti	-46.720±0.380
^{54}Ti	-45.910±0.450
^{55}Ti	-41.590±0.600
^{56}Ti	-39.690±0.820
^{57}Ti	-34.280±0.950
^{58}Ti	-31.830±0.970
^{59}Ti	-25.750±1.040
^{60}Ti	-22.850±1.120
^{61}Ti	-16.260±1.310
^{62}Ti	-12.610±1.370
^{63}Ti	-5.440±1.510
^{64}Ti	-1.710±1.580
^{65}Ti	5.890±1.670
^{66}Ti	10.130±1.780
^{67}Ti	17.940±1.840
^{68}Ti	22.980±1.900
^{69}Ti	31.040±1.950
^{70}Ti	36.340±2.040
^{71}Ti	44.820±2.200 †
^{72}Ti	50.480±2.340
^{73}Ti	60.640±2.500 †
^{74}Ti	68.780±2.550 †
^{75}Ti	79.230±2.660 †
^{76}Ti	87.650±2.740 †
^{77}Ti	98.590±2.850 †
^{78}Ti	107.600±2.980 †
^{79}Ti	119.270±3.100 †
^{80}Ti	128.780±3.260 †
^{81}Ti	140.780±3.340 †
^{82}Ti	150.390±3.570 †
^{37}V	49.130±1.310 †
^{38}V	35.700±1.280 †
^{39}V	21.830±1.160 †
^{40}V	11.590±0.920 †
^{41}V	0.170±0.740 †
^{42}V	-7.950±0.690 †
^{43}V	-18.030±0.620
^{44}V	-23.810±0.510
^{45}V	-31.920±0.470
^{47}V	-42.100±0.400
^{48}V	-44.180±0.520
^{49}V	-47.980±0.370
^{50}V	-49.220±0.390
^{51}V	-52.090±0.430
^{52}V	-51.480±0.410
^{53}V	-51.890±0.290
^{54}V	-49.880±0.230
^{55}V	-49.390±0.410
^{56}V	-46.080±0.510
^{57}V	-44.430±0.760
^{58}V	-40.170±0.690
^{59}V	-38.020±0.780
^{60}V	-33.100±0.810
^{61}V	-30.330±1.080

Isotope	Mass Excess
^{62}V	-24.920±1.170
^{63}V	-21.430±1.230
^{64}V	-15.620±1.300
^{65}V	-11.790±1.400
^{66}V	-5.550±1.500
^{67}V	-1.290±1.560
^{68}V	5.640±1.630
^{69}V	10.460±1.660
^{70}V	17.520±1.750
^{71}V	22.690±1.850
^{72}V	30.090±2.030
^{73}V	35.650±2.140
^{74}V	44.710±2.210 †
^{75}V	52.690±2.300 ‡
^{76}V	62.030±2.380 †
^{77}V	70.580±2.520 †
^{78}V	80.600±2.580 †
^{79}V	89.530±2.730 †
^{80}V	100.360±2.870 †
^{81}V	109.610±2.980 †
^{82}V	120.870±3.190 †
^{83}V	130.090±3.330 †
^{84}V	141.150±3.350 †
^{85}V	150.570±3.420 †
^{35}Cr	119.060±1.730 †
^{36}Cr	96.490±1.610 †
^{37}Cr	79.490±1.610 †
^{38}Cr	58.960±1.600 †
^{39}Cr	45.270±1.470 †
^{40}Cr	29.830±1.190 †
^{41}Cr	19.230±0.980 †
^{42}Cr	6.430±0.920 ‡
^{43}Cr	-2.110±0.840
^{44}Cr	-13.910±0.720
^{45}Cr	-19.850±0.650
^{46}Cr	-29.370±0.510
^{47}Cr	-34.660±0.410
^{48}Cr	-42.910±0.500
^{49}Cr	-45.400±0.470
^{50}Cr	-50.090±0.410
^{51}Cr	-51.510±0.410
^{52}Cr	-55.470±0.440
^{53}Cr	-55.220±0.430
^{54}Cr	-56.720±0.350
^{55}Cr	-55.030±0.320
^{56}Cr	-55.550±0.410
^{57}Cr	-52.490±0.400
^{58}Cr	-51.980±0.500
^{59}Cr	-48.020±0.520
^{60}Cr	-47.030±0.570
^{61}Cr	-42.240±0.740
^{62}Cr	-40.650±0.900
^{63}Cr	-35.400±0.990
^{64}Cr	-33.270±0.990
^{65}Cr	-27.360±1.100
^{66}Cr	-24.890±1.180
^{67}Cr	-18.630±1.270
^{68}Cr	-15.260±1.300
^{69}Cr	-8.540±1.370
^{70}Cr	-4.730±1.430
^{71}Cr	2.210±1.530
^{72}Cr	6.300±1.650
^{73}Cr	13.590±1.820
^{74}Cr	18.050±1.820
^{75}Cr	26.950±1.920 †
^{76}Cr	33.830±1.980
^{77}Cr	43.300±2.110 †
^{78}Cr	50.920±2.200 ‡
^{79}Cr	60.870±2.290 †
^{80}Cr	68.950±2.470 †
^{81}Cr	79.520±2.560 †
^{82}Cr	88.040±2.800 †
^{83}Cr	98.900±2.910 †
^{84}Cr	107.260±3.050 †
^{85}Cr	118.390±2.960 †

Isotope	Mass Excess
^{86}Cr	126.650±3.090 †
^{87}Cr	137.750±3.170 †
^{88}Cr	146.240±3.180 †
^{41}Mn	41.770±1.230 †
^{42}Mn	29.780±1.170 †
^{43}Mn	16.560±1.100 †
^{44}Mn	6.310±0.950 †
^{45}Mn	-5.650±0.860 †
^{46}Mn	-13.010±0.700
^{47}Mn	-22.860±0.590
^{48}Mn	-29.070±0.520
^{49}Mn	-37.740±0.480
^{51}Mn	-48.070±0.420
^{52}Mn	-50.580±0.400
^{53}Mn	-54.910±0.420
^{54}Mn	-55.740±0.450
^{55}Mn	-57.560±0.340
^{56}Mn	-56.880±0.290
^{57}Mn	-57.650±0.310
^{58}Mn	-55.730±0.280
^{59}Mn	-55.520±0.370
^{60}Mn	-52.730±0.380
^{61}Mn	-51.870±0.560
^{62}Mn	-48.260±0.630
^{63}Mn	-46.830±0.770
^{64}Mn	-42.940±0.800
^{65}Mn	-40.700±0.850
^{66}Mn	-36.150±0.910
^{67}Mn	-33.670±0.980
^{68}Mn	-28.290±1.040
^{69}Mn	-25.130±1.080
^{70}Mn	-19.420±1.160
^{71}Mn	-15.730±1.240
^{72}Mn	-9.880±1.350
^{73}Mn	-5.890±1.440
^{74}Mn	0.310±1.500
^{75}Mn	4.610±1.550
^{76}Mn	12.400±1.630
^{77}Mn	19.400±1.740
^{78}Mn	27.950±1.840 †
^{79}Mn	35.500±1.930
^{80}Mn	44.600±2.060 †
^{81}Mn	52.420±2.190 ‡
^{82}Mn	62.260±2.410 †
^{83}Mn	70.380±2.540 †
^{84}Mn	80.380±2.650 †
^{85}Mn	88.810±2.670 †
^{86}Mn	98.780±2.640 †
^{87}Mn	106.950±2.810 †
^{88}Mn	117.240±2.850 †
^{89}Mn	125.500±2.810 †
^{90}Mn	136.310±2.970 †
^{91}Mn	145.190±3.050 †
^{37}Fe	150.400±2.270 †
^{38}Fe	125.500±2.290 †
^{39}Fe	106.580±2.150 †
^{40}Fe	84.210±1.780 †
^{41}Fe	68.580±1.500 †
^{42}Fe	51.400±1.450 †
^{43}Fe	38.990±1.380 †
^{44}Fe	24.070±1.210 †
^{45}Fe	13.650±1.120 †
^{46}Fe	0.280±0.920
^{47}Fe	-7.410±0.790
^{48}Fe	-18.180±0.720
^{49}Fe	-24.810±0.650
^{50}Fe	-34.360±0.520
^{51}Fe	-40.010±0.430
^{52}Fe	-48.280±0.470
^{53}Fe	-51.150±0.470
^{54}Fe	-56.560±0.450
^{55}Fe	-57.710±0.380
^{56}Fe	-60.540±0.380
^{57}Fe	-60.110±0.310

Isotope	Mass Excess
^{58}Fe	-62.010±0.260
^{59}Fe	-60.400±0.340
^{60}Fe	-61.360±0.410
^{61}Fe	-58.690±0.420
^{62}Fe	-59.010±0.420
^{63}Fe	-55.560±0.490
^{64}Fe	-55.490±0.620
^{65}Fe	-51.500±0.700
^{66}Fe	-50.620±0.680
^{67}Fe	-46.060±0.720
^{68}Fe	-44.450±0.760
^{69}Fe	-39.290±0.860
^{70}Fe	-37.140±0.920
^{71}Fe	-31.560±1.020
^{72}Fe	-28.950±1.100
^{73}Fe	-23.200±1.180
^{74}Fe	-20.310±1.160
^{75}Fe	-14.270±1.240
^{76}Fe	-11.070±1.290
^{77}Fe	-3.160±1.400
^{78}Fe	2.930±1.480
^{79}Fe	11.400±1.580 †
^{80}Fe	18.110±1.710
^{81}Fe	26.950±1.790 †
^{82}Fe	34.030±2.060
^{83}Fe	43.470±2.180 †
^{84}Fe	50.730±2.310 ‡
^{85}Fe	60.810±2.310 †
^{86}Fe	68.080±2.380 ‡
^{87}Fe	77.950±2.380 †
^{88}Fe	85.310±2.520 ‡
^{89}Fe	95.370±2.500 †
^{90}Fe	102.960±2.550 ‡
^{91}Fe	113.690±2.650 †
^{92}Fe	121.870±2.820 †
^{93}Fe	132.820±2.880 †
^{94}Fe	141.260±2.960 †
^{95}Fe	152.400±3.090 †
^{96}Fe	161.050±3.170 †
^{97}Fe	172.400±3.260 †
^{98}Fe	181.420±3.380 †
^{99}Fe	193.010±3.500 †
^{100}Fe	201.850±3.630 †
^{43}Co	64.300±1.670 †
^{44}Co	50.180±1.490 †
^{45}Co	35.090±1.400 †
^{46}Co	23.270±1.170 †
^{47}Co	9.560±1.020 †
^{48}Co	0.950±0.940 †
^{49}Co	-10.240±0.870 †
^{50}Co	-17.760±0.700
^{51}Co	-27.490±0.600
^{52}Co	-34.230±0.520
^{53}Co	-42.860±0.480
^{55}Co	-54.070±0.400
^{56}Co	-56.220±0.350
^{57}Co	-59.300±0.310
^{58}Co	-60.010±0.350
^{59}Co	-62.220±0.330
^{60}Co	-61.770±0.480
^{61}Co	-62.850±0.310
^{62}Co	-61.360±0.310
^{63}Co	-61.850±0.360
^{64}Co	-59.760±0.380
^{65}Co	-59.580±0.540
^{66}Co	-56.960±0.580
^{67}Co	-56.070±0.550
^{68}Co	-52.380±0.560
^{69}Co	-50.990±0.670
^{70}Co	-46.830±0.770
^{71}Co	-44.810±0.860
^{72}Co	-40.310±0.930
^{73}Co	-37.800±0.970
^{74}Co	-33.150±0.960
^{75}Co	-30.420±0.940

Isotope	Mass Excess
^{76}Co	-25.480±1.030
^{77}Co	-22.170±1.080
^{78}Co	-15.160±1.180
^{79}Co	-9.160±1.260
^{80}Co	-1.530±1.380
^{81}Co	4.910±1.480
^{82}Co	13.020±1.690 †
^{83}Co	19.710±1.850
^{84}Co	28.290±1.970 †
^{85}Co	35.620±2.010
^{86}Co	44.540±2.060 †
^{87}Co	51.710±2.150
^{88}Co	60.780±2.120 †
^{89}Co	67.910±2.180 ‡
^{90}Co	77.290±2.240 †
^{91}Co	84.800±2.230 ‡
^{92}Co	94.840±2.420 †
^{93}Co	102.750±2.510 ‡
^{94}Co	113.080±2.590 †
^{95}Co	121.270±2.690 †
^{96}Co	131.790±2.820 †
^{97}Co	140.170±2.890 †
^{98}Co	151.050±3.020 †
^{99}Co	159.740±3.120 †
^{100}Co	170.400±3.230 †
^{101}Co	179.260±3.400 †
^{102}Co	189.980±3.540 †
^{103}Co	198.480±3.660 †
^{41}Ni	135.270±2.090 †
^{42}Ni	111.150±2.060 †
^{43}Ni	93.720±1.990 †
^{44}Ni	74.420±1.790 †
^{45}Ni	60.130±1.700 †
^{46}Ni	43.630±1.430 †
^{47}Ni	31.470±1.260 †
^{48}Ni	16.850±1.190 ‡
^{49}Ni	7.820±1.110 ‡
^{50}Ni	-4.260±0.920
^{51}Ni	-11.960±0.800
^{52}Ni	-22.780±0.710
^{53}Ni	-29.890±0.650
^{54}Ni	-39.600±0.520
^{55}Ni	-45.390±0.420
^{56}Ni	-53.710±0.340
^{57}Ni	-56.120±0.390
^{58}Ni	-60.340±0.320
^{59}Ni	-61.350±0.360
^{60}Ni	-64.730±0.450
^{61}Ni	-64.400±0.420
^{62}Ni	-66.670±0.420
^{63}Ni	-65.340±0.420
^{64}Ni	-67.180±0.350
^{65}Ni	-64.990±0.370
^{66}Ni	-66.180±0.420
^{67}Ni	-63.530±0.420
^{68}Ni	-63.520±0.400
^{69}Ni	-60.050±0.480
^{70}Ni	-59.670±0.580
^{71}Ni	-55.640±0.680
^{72}Ni	-54.690±0.760
^{73}Ni	-50.300±0.800
^{74}Ni	-48.890±0.760
^{75}Ni	-44.390±0.760
^{76}Ni	-42.770±0.780
^{77}Ni	-37.710±0.870
^{78}Ni	-35.310±0.900
^{79}Ni	-28.390±1.000
^{80}Ni	-23.220±1.080
^{81}Ni	-15.860±1.190
^{82}Ni	-10.150±1.390
^{83}Ni	-2.440±1.470
^{84}Ni	3.390±1.630
^{85}Ni	12.040±1.700 †
^{86}Ni	18.220±1.760
^{87}Ni	27.040±1.820 †

Isotope	Mass Excess
^{88}Ni	33.400±1.890
^{89}Ni	42.240±1.800 †
^{90}Ni	48.700±1.920
^{91}Ni	58.010±1.930 †
^{92}Ni	64.820±2.010
^{93}Ni	74.580±2.110 †
^{94}Ni	81.870±2.220 ‡
^{95}Ni	91.950±2.330 †
^{96}Ni	99.520±2.430 ‡
^{97}Ni	109.770±2.530 †
^{98}Ni	117.680±2.650 ‡
^{99}Ni	128.240±2.770 †
^{100}Ni	136.000±2.840 ‡
^{101}Ni	146.680±3.010 †
^{102}Ni	154.730±3.160 ‡
^{103}Ni	165.170±3.280 †
^{104}Ni	173.140±3.510 ‡
^{105}Ni	183.710±3.650 †
^{106}Ni	192.020±3.680 †
^{107}Ni	202.840±3.830 †
^{108}Ni	211.160±3.970 †
^{109}Ni	221.970±4.020 †
^{110}Ni	230.510±4.050 †
^{111}Ni	243.280±4.160 †
^{112}Ni	254.180±4.220 †
^{48}Cu	43.480±1.450 †
^{49}Cu	28.430±1.370 †
^{50}Cu	18.520±1.150 †
^{51}Cu	6.260±1.020 †
^{52}Cu	-2.530±0.920 †
^{53}Cu	-13.720±0.860 †
^{54}Cu	-21.910±0.700 †
^{55}Cu	-31.940±0.570 †
^{56}Cu	-38.740±0.460
^{57}Cu	-47.310±0.400
^{58}Cu	-51.820±0.510
^{59}Cu	-56.340±0.420
^{60}Cu	-58.510±0.440
^{61}Cu	-62.020±0.410
^{62}Cu	-62.870±0.400
^{63}Cu	-65.300±0.530
^{64}Cu	-65.330±0.470
^{65}Cu	-67.070±0.450
^{66}Cu	-66.240±0.310
^{67}Cu	-67.410±0.470
^{68}Cu	-65.640±0.470
^{69}Cu	-65.850±0.380
^{70}Cu	-63.390±0.410
^{71}Cu	-63.130±0.500
^{72}Cu	-60.180±0.620
^{73}Cu	-59.340±0.690
^{74}Cu	-56.040±0.670
^{75}Cu	-54.790±0.640
^{76}Cu	-51.400±0.640
^{77}Cu	-49.650±0.660
^{78}Cu	-45.510±0.730
^{79}Cu	-43.190±0.780
^{80}Cu	-37.110±0.880
^{81}Cu	-32.210±0.970
^{82}Cu	-25.580±1.140
^{83}Cu	-20.260±1.270
^{84}Cu	-13.410±1.330
^{85}Cu	-7.510±1.410
^{86}Cu	-0.020±1.520
^{87}Cu	6.060±1.600
^{88}Cu	14.070±1.640
^{89}Cu	20.210±1.640
^{90}Cu	28.370±1.630 †
^{91}Cu	34.750±1.700
^{92}Cu	43.360±1.790 †
^{93}Cu	49.900±1.790
^{94}Cu	59.050±1.910 †
^{95}Cu	66.090±2.050 ‡
^{96}Cu	75.550±2.170 †
^{97}Cu	82.850±2.240 ‡

Isotope	Mass Excess
^{98}Cu	92.620±2.390 †
^{99}Cu	100.210±2.470 ‡
^{100}Cu	109.830±2.570 †
^{101}Cu	117.620±2.700 ‡
^{102}Cu	127.480±2.870 †
^{103}Cu	135.260±2.980 ‡
^{104}Cu	145.170±3.220 †
^{105}Cu	153.160±3.320 ‡
^{106}Cu	163.130±3.440 †
^{107}Cu	171.330±3.530 †
^{108}Cu	181.320±3.680 †
^{109}Cu	189.770±3.780 †
^{110}Cu	199.580±3.720 †
^{111}Cu	208.270±3.860 †
^{112}Cu	220.320±3.940 †
^{113}Cu	231.180±4.020 †
^{114}Cu	243.320±4.180 †
^{49}Zn	54.630±1.650 †
^{50}Zn	38.700±1.400 †
^{51}Zn	28.610±1.250 †
^{52}Zn	15.250±1.150 †
^{53}Zn	6.100±1.090 †
^{54}Zn	-6.170±0.900 †
^{55}Zn	-14.680±0.750 ‡
^{56}Zn	-25.710±0.620
^{57}Zn	-32.770±0.550
^{58}Zn	-42.480±0.470
^{59}Zn	-47.290±0.430
^{60}Zn	-54.070±0.440
^{61}Zn	-56.370±0.470
^{62}Zn	-61.050±0.430
^{63}Zn	-62.060±0.460
^{64}Zn	-65.850±0.540
^{65}Zn	-65.780±0.510
^{66}Zn	-68.880±0.420
^{67}Zn	-68.040±0.460
^{68}Zn	-70.090±0.640
^{69}Zn	-68.540±0.480
^{70}Zn	-69.750±0.450
^{71}Zn	-67.410±0.410
^{72}Zn	-68.240±0.470
^{73}Zn	-65.390±0.550
^{74}Zn	-65.640±0.550
^{75}Zn	-62.510±0.510
^{76}Zn	-62.360±0.530
^{77}Zn	-58.850±0.520
^{78}Zn	-58.020±0.520
^{79}Zn	-53.960±0.630
^{80}Zn	-52.480±0.650
^{81}Zn	-46.660±0.780
^{82}Zn	-42.490±0.940
^{83}Zn	-36.260±1.030
^{84}Zn	-31.800±1.150
^{85}Zn	-24.880±1.190
^{86}Zn	-20.140±1.260
^{87}Zn	-12.740±1.370
^{88}Zn	-7.470±1.430
^{89}Zn	0.310±1.420
^{90}Zn	5.770±1.480
^{91}Zn	13.860±1.420 †
^{92}Zn	19.540±1.540
^{93}Zn	27.880±1.560 †
^{94}Zn	33.800±1.620
^{95}Zn	42.710±1.760 †
^{96}Zn	49.120±1.920
^{97}Zn	58.310±2.010 †
^{98}Zn	65.140±2.130
^{99}Zn	74.590±2.240 †
^{100}Zn	81.240±2.320
^{101}Zn	90.890±2.470 †
^{102}Zn	97.860±2.600 ‡
^{103}Zn	107.450±2.720 †
^{104}Zn	114.700±2.960 ‡
^{105}Zn	124.630±3.070 †
^{106}Zn	132.020±3.150 ‡

Isotope	Mass Excess
^{107}Zn	141.880±3.340 †
^{108}Zn	149.250±3.400 ‡
^{109}Zn	159.370±3.530 †
^{110}Zn	166.810±3.520 ‡
^{111}Zn	176.780±3.570 †
^{112}Zn	184.740±3.670 ‡
^{113}Zn	196.740±3.780 †
^{114}Zn	206.810±3.900 †
^{115}Zn	218.820±4.010 †
^{116}Zn	228.930±4.090 †
^{117}Zn	241.280±4.150 †
^{118}Zn	251.460±4.270 †
^{54}Ga	17.400±1.110 †
^{55}Ga	4.810±0.940 †
^{56}Ga	-4.710±0.790 †
^{57}Ga	-16.000±0.710 †
^{58}Ga	-24.190±0.630 †
^{59}Ga	-34.200±0.580 †
^{60}Ga	-40.180±0.520
^{61}Ga	-47.080±0.480
^{62}Ga	-51.600±0.570
^{63}Ga	-56.450±0.560
^{64}Ga	-58.820±0.550
^{65}Ga	-62.510±0.480
^{66}Ga	-63.800±0.390
^{67}Ga	-66.890±0.450
^{68}Ga	-66.920±0.480
^{69}Ga	-69.190±0.560
^{70}Ga	-68.640±0.450
^{71}Ga	-69.980±0.420
^{72}Ga	-68.730±0.440
^{73}Ga	-69.650±0.530
^{74}Ga	-67.900±0.500
^{75}Ga	-68.320±0.510
^{76}Ga	-66.280±0.510
^{77}Ga	-66.020±0.400
^{78}Ga	-63.420±0.370
^{79}Ga	-62.670±0.390
^{80}Ga	-59.450±0.430
^{81}Ga	-58.230±0.550
^{82}Ga	-53.150±0.760
^{83}Ga	-49.380±0.820
^{84}Ga	-44.000±0.890
^{85}Ga	-39.470±1.000
^{86}Ga	-33.710±1.040
^{87}Ga	-29.070±1.150
^{88}Ga	-22.480±1.230
^{89}Ga	-17.440±1.220
^{90}Ga	-10.330±1.250
^{91}Ga	-4.940±1.260
^{92}Ga	2.450±1.280
^{93}Ga	7.850±1.350
^{94}Ga	15.580±1.400
^{95}Ga	21.250±1.460
^{96}Ga	29.530±1.600 †
^{97}Ga	35.680±1.730
^{98}Ga	44.390±1.870 †
^{99}Ga	50.900±1.950
^{100}Ga	59.420±2.050 †
^{101}Ga	66.090±2.190
^{102}Ga	74.930±2.340 †
^{103}Ga	81.620±2.400
^{104}Ga	90.680±2.670 †
^{105}Ga	97.950±2.780 ‡
^{106}Ga	107.280±2.870 †
^{107}Ga	114.570±3.010 ‡
^{108}Ga	123.600±3.180 †
^{109}Ga	131.100±3.210 ‡
^{110}Ga	140.210±3.230 †
^{111}Ga	147.810±3.330 ‡
^{112}Ga	157.040±3.340 †
^{113}Ga	164.960±3.470 ‡
^{114}Ga	176.180±3.610 †
^{115}Ga	186.110±3.680 †
^{116}Ga	197.500±3.790 †

Isotope	Mass Excess
^{117}Ga	207.580±3.810 †
^{118}Ga	219.280±3.950 †
^{119}Ga	229.280±4.000 †
^{51}Ge	81.520±1.770 †
^{52}Ge	64.310±1.650 †
^{53}Ge	52.760±1.600 †
^{54}Ge	37.960±1.340 †
^{55}Ge	27.400±1.150 †
^{56}Ge	13.810±0.980 †
^{57}Ge	4.040±0.890 †
^{58}Ge	-8.390±0.800 †
^{59}Ge	-16.890±0.750 †
^{60}Ge	-28.070±0.690
^{61}Ge	-34.170±0.650
^{62}Ge	-42.250±0.610
^{63}Ge	-46.940±0.570
^{64}Ge	-54.250±0.590
^{65}Ge	-56.520±0.500
^{66}Ge	-61.570±0.430
^{67}Ge	-62.850±0.430
^{68}Ge	-66.810±0.380
^{69}Ge	-67.060±0.460
^{70}Ge	-70.330±0.510
^{71}Ge	-69.920±0.440
^{72}Ge	-72.330±0.460
^{73}Ge	-71.190±0.410
^{74}Ge	-73.210±0.510
^{75}Ge	-71.620±0.530
^{76}Ge	-73.140±0.560
^{77}Ge	-70.980±0.440
^{78}Ge	-71.630±0.440
^{79}Ge	-69.110±0.510
^{80}Ge	-69.200±0.380
^{81}Ge	-66.250±0.420
^{82}Ge	-65.760±0.550
^{83}Ge	-61.070±0.650
^{84}Ge	-58.160±0.670
^{85}Ge	-52.720±0.760
^{86}Ge	-49.350±0.820
^{87}Ge	-43.690±0.900
^{88}Ge	-39.850±0.960
^{89}Ge	-33.490±1.030
^{90}Ge	-29.120±1.050
^{91}Ge	-22.080±1.040
^{92}Ge	-17.400±1.130
^{93}Ge	-10.280±1.050
^{94}Ge	-5.490±1.140
^{95}Ge	1.990±1.230
^{96}Ge	7.030±1.300
^{97}Ge	15.050±1.410
^{98}Ge	20.720±1.560
^{99}Ge	29.110±1.670 †
^{100}Ge	34.690±1.750
^{101}Ge	43.230±1.890 †
^{102}Ge	49.090±2.020
^{103}Ge	57.650±2.110 †
^{104}Ge	63.810±2.340
^{105}Ge	72.890±2.460 †
^{106}Ge	79.570±2.550
^{107}Ge	88.780±2.710 †
^{108}Ge	95.240±2.830
^{109}Ge	104.400±2.960 †
^{110}Ge	110.890±2.880
^{111}Ge	120.160±3.010 †
^{112}Ge	127.030±3.080 ‡
^{113}Ge	136.230±3.130 †
^{114}Ge	143.360±3.280 ‡
^{115}Ge	154.430±3.370 †
^{116}Ge	163.750±3.440 †
^{117}Ge	175.120±3.490 †
^{118}Ge	184.540±3.590 †
^{119}Ge	196.050±3.660 †
^{120}Ge	205.360±3.790 †
^{59}As	2.970±0.940 †

Isotope	Mass Excess
^{60}As	-6.700±0.870 †
^{61}As	-18.000±0.840 †
^{62}As	-25.280±0.790 †
^{63}As	-33.520±0.760 †
^{64}As	-39.570±0.610 †
^{65}As	-46.780±0.510 †
^{66}As	-51.800±0.580
^{67}As	-56.830±0.460
^{68}As	-58.980±0.400
^{69}As	-63.170±0.440
^{70}As	-64.420±0.460
^{71}As	-67.820±0.500
^{72}As	-68.490±0.510
^{73}As	-71.010±0.520
^{74}As	-70.950±0.450
^{75}As	-73.140±0.600
^{76}As	-72.650±0.620
^{77}As	-74.050±0.570
^{78}As	-72.810±0.590
^{79}As	-73.540±0.610
^{80}As	-71.860±0.600
^{81}As	-72.210±0.500
^{82}As	-69.990±0.520
^{83}As	-69.900±0.470
^{84}As	-66.070±0.560
^{85}As	-63.090±0.640
^{86}As	-58.800±0.660
^{87}As	-55.540±0.750
^{88}As	-50.680±0.840
^{89}As	-47.060±0.860
^{90}As	-41.380±0.960
^{91}As	-37.090±0.930
^{92}As	-30.750±0.970
^{93}As	-26.340±0.980
^{94}As	-19.840±0.910
^{95}As	-15.300±1.040
^{96}As	-8.450±1.130
^{97}As	-3.660±1.160
^{98}As	3.870±1.280
^{99}As	9.220±1.410
^{100}As	16.680±1.520
^{101}As	22.280±1.630
^{102}As	30.010±1.770
^{103}As	35.600±1.850
^{104}As	43.620±2.090
^{105}As	49.810±2.170
^{106}As	58.290±2.280 †
^{107}As	64.850±2.430
^{108}As	73.240±2.560 †
^{109}As	79.820±2.650
^{110}As	87.970±2.680 †
^{111}As	94.630±2.700
^{112}As	103.170±2.800 †
^{113}As	110.000±2.910
^{114}As	118.400±2.970 †
^{115}As	125.400±3.060
^{116}As	135.860±3.150 †
^{117}As	145.150±3.160 †
^{118}As	155.860±3.310 †
^{119}As	165.100±3.320 †
^{120}As	175.920±3.470 †
^{121}As	185.060±3.550 †
^{55}Se	80.010±1.600 †
^{56}Se	63.880±1.380 †
^{57}Se	52.070±1.290 †
^{58}Se	37.080±1.180 †
^{59}Se	25.870±1.130 †
^{60}Se	11.970±1.070 †
^{61}Se	2.180±1.030 †
^{62}Se	-10.300±1.000 †
^{63}Se	-17.740±0.960 †
^{64}Se	-27.350±0.790 ‡
^{65}Se	-33.290±0.680
^{66}Se	-41.870±0.550
^{67}Se	-46.870±0.470

Isotope	Mass Excess
^{68}Se	-54.260±0.500
^{69}Se	-56.630±0.470
^{70}Se	-61.810±0.440
^{71}Se	-63.190±0.410
^{72}Se	-67.680±0.430
^{73}Se	-68.450±0.510
^{74}Se	-72.060±0.540
^{75}Se	-72.170±0.530
^{76}Se	-75.460±0.620
^{77}Se	-74.850±0.590
^{78}Se	-77.160±0.610
^{79}Se	-76.000±0.610
^{80}Se	-77.570±0.570
^{81}Se	-76.160±0.570
^{82}Se	-77.250±0.480
^{83}Se	-75.420±0.470
^{84}Se	-76.190±0.510
^{85}Se	-72.290±0.570
^{86}Se	-70.470±0.530
^{87}Se	-66.280±0.660
^{88}Se	-63.820±0.680
^{89}Se	-59.180±0.770
^{90}Se	-56.250±0.760
^{91}Se	-50.640±0.830
^{92}Se	-47.050±0.840
^{93}Se	-40.990±0.860
^{94}Se	-37.190±0.870
^{95}Se	-30.940±0.860
^{96}Se	-27.020±0.960
^{97}Se	-20.430±1.050
^{98}Se	-16.130±1.070
^{99}Se	-8.910±1.160
^{100}Se	-4.490±1.300
^{101}Se	2.990±1.470
^{102}Se	7.770±1.590
^{103}Se	15.230±1.650
^{104}Se	20.280±1.880
^{105}Se	28.330±1.970
^{106}Se	33.920±2.040
^{107}Se	42.290±2.200 †
^{108}Se	48.020±2.330
^{109}Se	56.540±2.430 †
^{110}Se	62.120±2.410
^{111}Se	70.430±2.530 †
^{112}Se	76.350±2.530
^{113}Se	84.850±2.680 †
^{114}Se	90.890±2.810
^{115}Se	99.160±2.800 †
^{116}Se	105.540±2.900
^{117}Se	115.970±2.940 †
^{118}Se	124.610±3.040 †
^{119}Se	135.130±3.090 †
^{120}Se	143.680±3.200 †
^{121}Se	154.340±3.290 †
^{122}Se	162.930±3.420 †
^{123}Se	173.740±3.540 †
^{124}Se	182.300±3.720 †
^{125}Se	193.210±3.790 †
^{126}Se	201.980±3.870 †
^{62}Br	13.860±1.210 †
^{63}Br	1.220±1.190 †
^{64}Br	-7.580±0.980 †
^{65}Br	-17.090±0.860 †
^{66}Br	-24.390±0.710 †
^{67}Br	-32.950±0.620 †
^{68}Br	-38.830±0.520 †
^{69}Br	-46.440±0.480 †
^{70}Br	-51.290±0.590
^{71}Br	-56.610±0.570
^{72}Br	-59.070±0.600
^{73}Br	-63.660±0.440
^{74}Br	-65.520±0.510
^{75}Br	-69.300±0.550
^{76}Br	-70.510±0.550
^{77}Br	-73.680±0.540

Isotope	Mass Excess
^{78}Br	-73.990±0.520
^{79}Br	-76.380±0.630
^{80}Br	-76.060±0.570
^{81}Br	-77.890±0.570
^{82}Br	-77.210±0.510
^{83}Br	-78.690±0.380
^{84}Br	-77.730±0.410
^{85}Br	-78.430±0.470
^{86}Br	-75.680±0.460
^{87}Br	-73.960±0.500
^{88}Br	-70.580±0.560
^{89}Br	-68.340±0.510
^{90}Br	-64.390±0.580
^{91}Br	-61.530±0.560
^{92}Br	-56.620±0.660
^{93}Br	-53.300±0.710
^{94}Br	-47.850±0.720
^{95}Br	-44.300±0.780
^{96}Br	-38.670±0.750
^{97}Br	-35.020±0.860
^{98}Br	-28.910±0.890
^{99}Br	-24.930±0.940
^{100}Br	-18.640±1.030
^{101}Br	-14.200±1.230
^{102}Br	-7.540±1.400
^{103}Br	-3.030±1.430
^{104}Br	3.900±1.670
^{105}Br	8.970±1.740
^{106}Br	16.430±1.830
^{107}Br	21.900±1.950
^{108}Br	29.440±2.120
^{109}Br	35.300±2.200
^{110}Br	42.810±2.190
^{111}Br	48.550±2.270
^{112}Br	56.130±2.360
^{113}Br	62.010±2.400
^{114}Br	69.720±2.570
^{115}Br	75.620±2.630
^{116}Br	83.280±2.630
^{117}Br	89.630±2.670
^{118}Br	99.410±2.800 †
^{119}Br	107.860±2.810 †
^{120}Br	117.690±2.970 †
^{121}Br	126.070±3.010 †
^{122}Br	136.190±3.140 †
^{123}Br	144.640±3.300 †
^{124}Br	154.880±3.380 †
^{125}Br	163.450±3.540 †
^{126}Br	173.730±3.590 †
^{127}Br	182.610±3.650 †
^{59}Kr	79.080±1.560 †
^{60}Kr	62.620±1.490 †
^{61}Kr	50.120±1.480 †
^{62}Kr	34.920±1.440 †
^{63}Kr	23.790±1.430 †
^{64}Kr	9.780±1.190 †
^{65}Kr	1.080±1.050 †
^{66}Kr	-9.780±0.880 †
^{67}Kr	-17.070±0.780 †
^{68}Kr	-26.510±0.660 ‡
^{69}Kr	-32.600±0.620
^{70}Kr	-41.220±0.610
^{71}Kr	-46.200±0.580
^{72}Kr	-53.940±0.740
^{73}Kr	-56.510±0.710
^{74}Kr	-62.180±0.490
^{75}Kr	-64.210±0.570
^{76}Kr	-69.090±0.570
^{77}Kr	-70.180±0.490
^{78}Kr	-74.260±0.540
^{79}Kr	-74.650±0.540
^{80}Kr	-77.880±0.560
^{81}Kr	-77.820±0.580
^{82}Kr	-80.400±0.530
^{83}Kr	-80.110±0.520

Isotope	Mass Excess
^{84}Kr	-82.460±0.350
^{85}Kr	-81.420±0.530
^{86}Kr	-83.280±0.490
^{87}Kr	-80.630±0.460
^{88}Kr	-79.710±0.500
^{89}Kr	-76.560±0.490
^{90}Kr	-75.000±0.530
^{91}Kr	-71.120±0.500
^{92}Kr	-68.960±0.510
^{93}Kr	-64.320±0.620
^{94}Kr	-61.620±0.660
^{95}Kr	-56.420±0.700
^{96}Kr	-53.490±0.810
^{97}Kr	-48.130±0.720
^{98}Kr	-44.960±0.700
^{99}Kr	-39.170±0.790
^{100}Kr	-36.120±0.850
^{101}Kr	-29.810±0.990
^{102}Kr	-26.180±1.180
^{103}Kr	-19.790±1.280
^{104}Kr	-15.810±1.460
^{105}Kr	-8.870±1.540
^{106}Kr	-4.390±1.620
^{107}Kr	2.950±1.760
^{108}Kr	7.600±1.870
^{109}Kr	15.270±1.970
^{110}Kr	20.120±1.960
^{111}Kr	27.790±2.050
^{112}Kr	32.800±2.100
^{113}Kr	40.340±2.240
^{114}Kr	45.420±2.300
^{115}Kr	53.000±2.390
^{116}Kr	58.290±2.470
^{117}Kr	65.910±2.400
^{118}Kr	71.610±2.530
^{119}Kr	81.210±2.570 †
^{120}Kr	88.970±2.670 ‡
^{121}Kr	98.630±2.770 †
^{122}Kr	106.470±2.870 ‡
^{123}Kr	116.440±3.020 †
^{124}Kr	124.330±3.150 ‡
^{125}Kr	134.580±3.190 †
^{126}Kr	142.510±3.330 ‡
^{127}Kr	152.910±3.370 †
^{128}Kr	161.130±3.510 †
^{129}Kr	171.480±3.610 †
^{130}Kr	179.970±3.650 †
^{131}Kr	190.560±3.790 †
^{132}Kr	199.210±3.890 †
^{133}Kr	210.130±4.050 †
^{134}Kr	219.380±4.220 †
^{135}Kr	230.530±4.330 †
^{136}Kr	240.130±4.500 †
^{64}Rb	36.510±1.410 †
^{65}Rb	22.600±1.260 †
^{66}Rb	12.550±1.060 †
^{67}Rb	1.690±0.950 †
^{68}Rb	-6.470±0.810 †
^{69}Rb	-16.130±0.770 †
^{70}Rb	-23.230±0.780 †
^{71}Rb	-31.970±0.750 †
^{72}Rb	-38.030±0.740 †
^{73}Rb	-45.870±0.720 †
^{74}Rb	-51.060±0.810
^{75}Rb	-56.900±0.620
^{76}Rb	-60.030±0.690
^{77}Rb	-64.800±0.620
^{78}Rb	-66.800±0.560
^{79}Rb	-70.960±0.560
^{80}Rb	-72.190±0.520
^{81}Rb	-75.690±0.610
^{82}Rb	-76.360±0.530
^{83}Rb	-79.320±0.530
^{84}Rb	-79.900±0.490
^{85}Rb	-82.180±0.550

Isotope	Mass Excess
^{86}Rb	-82.290±0.520
^{87}Rb	-84.250±0.400
^{88}Rb	-82.420±0.460
^{89}Rb	-81.720±0.430
^{90}Rb	-79.250±0.460
^{91}Rb	-77.760±0.500
^{92}Rb	-74.580±0.490
^{93}Rb	-72.690±0.470
^{94}Rb	-68.670±0.500
^{95}Rb	-66.210±0.580
^{96}Rb	-61.640±0.670
^{97}Rb	-58.980±0.700
^{98}Rb	-54.100±0.560
^{99}Rb	-51.240±0.560
^{100}Rb	-46.390±0.640
^{101}Rb	-43.310±0.720
^{102}Rb	-37.820±0.940
^{103}Rb	-34.470±1.010
^{104}Rb	-28.600±1.270
^{105}Rb	-24.610±1.360
^{106}Rb	-18.260±1.410
^{107}Rb	-13.890±1.540
^{108}Rb	-7.380±1.660
^{109}Rb	-2.610±1.730
^{110}Rb	4.060±1.720
^{111}Rb	9.070±1.830
^{112}Rb	16.010±1.890
^{113}Rb	20.970±1.980
^{114}Rb	27.720±2.130
^{115}Rb	32.680±2.120
^{116}Rb	39.630±2.220
^{117}Rb	44.900±2.230
^{118}Rb	51.870±2.250
^{119}Rb	57.380±2.280
^{120}Rb	66.280±2.420 †
^{121}Rb	73.880±2.470 ‡
^{122}Rb	83.000±2.620 †
^{123}Rb	90.690±2.730 ‡
^{124}Rb	100.100±2.840 †
^{125}Rb	107.990±2.930 ‡
^{126}Rb	117.610±2.960 †
^{127}Rb	125.670±3.110 ‡
^{128}Rb	135.390±3.220 †
^{129}Rb	143.600±3.290 †
^{130}Rb	153.370±3.390 †
^{131}Rb	161.790±3.470 †
^{132}Rb	171.790±3.580 †
^{133}Rb	180.540±3.720 †
^{134}Rb	191.090±3.850 †
^{135}Rb	200.130±4.010 †
^{136}Rb	210.960±4.180 †
^{137}Rb	220.340±4.260 †
^{63}Sr	76.640±1.950 †
^{64}Sr	59.920±1.650 †
^{65}Sr	47.530±1.470 †
^{66}Sr	32.270±1.250 †
^{67}Sr	22.230±1.130 †
^{68}Sr	10.500±0.980 †
^{69}Sr	2.120±0.940 †
^{70}Sr	-8.550±0.950 †
^{71}Sr	-15.770±0.930 †
^{72}Sr	-25.590±0.940 ‡
^{73}Sr	-31.760±0.920
^{74}Sr	-40.700±0.740
^{75}Sr	-46.050±0.630
^{76}Sr	-54.400±0.780
^{77}Sr	-57.410±0.720
^{78}Sr	-63.090±0.670
^{79}Sr	-65.170±0.580
^{80}Sr	-70.170±0.600
^{81}Sr	-71.660±0.590
^{82}Sr	-75.900±0.530
^{83}Sr	-76.960±0.550
^{84}Sr	-80.790±0.480
^{85}Sr	-81.300±0.560

Isotope	Mass Excess
^{86}Sr	-84.720±0.560
^{87}Sr	-84.940±0.470
^{88}Sr	-87.710±0.420
^{89}Sr	-86.100±0.440
^{90}Sr	-86.080±0.490
^{91}Sr	-83.680±0.510
^{92}Sr	-82.890±0.570
^{93}Sr	-79.990±0.610
^{94}Sr	-78.710±0.450
^{95}Sr	-74.940±0.500
^{96}Sr	-73.110±0.560
^{97}Sr	-68.800±0.620
^{98}Sr	-66.620±0.590
^{99}Sr	-62.060±0.520
^{100}Sr	-60.130±0.500
^{101}Sr	-55.260±0.620
^{102}Sr	-53.000±0.750
^{103}Sr	-47.780±0.820
^{104}Sr	-44.960±1.040
^{105}Sr	-39.070±1.190
^{106}Sr	-35.670±1.250
^{107}Sr	-29.430±1.350
^{108}Sr	-25.900±1.490
^{109}Sr	-19.260±1.560
^{110}Sr	-15.490±1.510
^{111}Sr	-8.660±1.630
^{112}Sr	-4.390±1.690
^{113}Sr	2.510±1.780
^{114}Sr	6.680±1.880
^{115}Sr	13.300±1.960
^{116}Sr	17.640±1.960
^{117}Sr	24.570±2.020
^{118}Sr	29.180±2.110
^{119}Sr	35.960±2.040
^{120}Sr	40.780±2.170
^{121}Sr	49.520±2.250 †
^{122}Sr	56.570±2.340
^{123}Sr	65.550±2.520 †
^{124}Sr	72.680±2.590
^{125}Sr	82.090±2.650 †
^{126}Sr	89.350±2.750 ‡
^{127}Sr	99.100±2.760 †
^{128}Sr	106.480±2.980 ‡
^{129}Sr	116.190±3.030 †
^{130}Sr	123.820±3.110 ‡
^{131}Sr	133.520±3.250 †
^{132}Sr	141.350±3.300 ‡
^{133}Sr	151.450±3.430 †
^{134}Sr	159.820±3.550 †
^{135}Sr	170.170±3.670 †
^{136}Sr	178.890±3.900 †
^{137}Sr	189.500±3.960 †
^{138}Sr	198.280±4.040 †
^{139}Sr	209.150±4.110 †
^{140}Sr	218.340±4.260 †
^{141}Sr	229.340±4.390 †
^{142}Sr	238.760±4.530 †
^{68}Y	35.070±1.150 †
^{69}Y	23.130±1.120 †
^{70}Y	13.740±1.140 †
^{71}Y	2.950±1.120 †
^{72}Y	-5.360±1.150 †
^{73}Y	-15.290±1.130 †
^{74}Y	-22.550±0.930 †
^{75}Y	-31.650±0.790 †
^{76}Y	-38.100±0.750 †
^{77}Y	-46.330±0.730 †
^{78}Y	-51.760±0.820
^{79}Y	-57.520±0.730
^{80}Y	-60.440±0.700
^{81}Y	-65.700±0.680
^{82}Y	-67.940±0.630
^{83}Y	-72.560±0.590
^{84}Y	-74.490±0.560
^{85}Y	-78.240±0.560

Isotope	Mass Excess
^{86}Y	-79.910±0.610
^{87}Y	-83.440±0.610
^{88}Y	-84.460±0.550
^{89}Y	-87.450±0.560
^{90}Y	-86.520±0.510
^{91}Y	-86.580±0.580
^{92}Y	-84.870±0.560
^{93}Y	-84.360±0.590
^{94}Y	-82.070±0.630
^{95}Y	-81.040±0.540
^{96}Y	-77.900±0.560
^{97}Y	-76.330±0.640
^{98}Y	-72.500±0.650
^{99}Y	-70.640±0.620
^{100}Y	-67.010±0.580
^{101}Y	-65.060±0.550
^{102}Y	-61.000±0.690
^{103}Y	-59.010±0.680
^{104}Y	-54.330±0.850
^{105}Y	-51.490±1.000
^{106}Y	-46.190±1.100
^{107}Y	-42.910±1.190
^{108}Y	-37.500±1.300
^{109}Y	-33.830±1.400
^{110}Y	-28.200±1.350
^{111}Y	-24.270±1.400
^{112}Y	-18.180±1.510
^{113}Y	-13.950±1.580
^{114}Y	-7.840±1.680
^{115}Y	-3.800±1.710
^{116}Y	2.200±1.810
^{117}Y	6.510±1.750
^{118}Y	12.790±1.890
^{119}Y	17.210±1.880
^{120}Y	23.310±1.920
^{121}Y	27.960±1.980
^{122}Y	36.150±2.120 †
^{123}Y	43.060±2.230
^{124}Y	51.480±2.370 †
^{125}Y	58.610±2.390
^{126}Y	67.390±2.450 †
^{127}Y	74.770±2.530 ‡
^{128}Y	83.850±2.620 †
^{129}Y	91.220±2.770 ‡
^{130}Y	100.350±2.820 †
^{131}Y	107.910±2.930 ‡
^{132}Y	117.020±3.050 †
^{133}Y	124.950±3.130 ‡
^{134}Y	134.680±3.230 †
^{135}Y	142.850±3.350 †
^{136}Y	152.870±3.520 †
^{137}Y	161.370±3.650 †
^{138}Y	171.370±3.710 †
^{139}Y	180.210±3.830 †
^{140}Y	190.500±3.910 †
^{141}Y	199.560±4.030 †
^{142}Y	209.960±4.200 †
^{143}Y	219.300±4.330 †
^{67}Zr	73.430±1.530 †
^{68}Zr	57.310±1.340 †
^{69}Zr	46.170±1.300 †
^{70}Zr	33.220±1.340 †
^{71}Zr	23.700±1.330 †
^{72}Zr	11.840±1.370 †
^{73}Zr	3.420±1.370 †
^{74}Zr	-7.600±1.130 †
^{75}Zr	-15.020±0.980 †
^{76}Zr	-25.220±0.940 ‡
^{77}Zr	-31.560±0.920
^{78}Zr	-40.700±0.770
^{79}Zr	-46.210±0.740
^{80}Zr	-53.960±0.870
^{81}Zr	-57.150±0.900
^{82}Zr	-63.150±0.810
^{83}Zr	-65.770±0.760

Isotope	Mass Excess
^{84}Zr	-71.260±0.560
^{85}Zr	-73.110±0.560
^{86}Zr	-78.020±0.550
^{87}Zr	-79.790±0.550
^{88}Zr	-84.130±0.560
^{89}Zr	-85.380±0.590
^{90}Zr	-89.040±0.570
^{91}Zr	-88.180±0.530
^{92}Zr	-88.940±0.610
^{93}Zr	-87.510±0.690
^{94}Zr	-87.610±0.670
^{95}Zr	-85.570±0.700
^{96}Zr	-85.170±0.600
^{97}Zr	-82.290±0.700
^{98}Zr	-81.200±0.660
^{99}Zr	-77.690±0.660
^{100}Zr	-76.760±0.600
^{101}Zr	-73.110±0.570
^{102}Zr	-71.980±0.570
^{103}Zr	-68.190±0.490
^{104}Zr	-66.730±0.640
^{105}Zr	-62.030±0.810
^{106}Zr	-59.780±0.940
^{107}Zr	-54.600±1.010
^{108}Zr	-52.150±1.120
^{109}Zr	-46.610±1.180
^{110}Zr	-43.950±1.170
^{111}Zr	-38.160±1.210
^{112}Zr	-34.960±1.260
^{113}Zr	-28.910±1.380
^{114}Zr	-25.470±1.450
^{115}Zr	-19.490±1.480
^{116}Zr	-16.070±1.530
^{117}Zr	-10.100±1.580
^{118}Zr	-6.440±1.590
^{119}Zr	-0.350±1.640
^{120}Zr	3.380±1.730
^{121}Zr	9.310±1.720
^{122}Zr	13.420±1.830
^{123}Zr	21.470±1.980
^{124}Zr	27.820±2.060
^{125}Zr	36.240±2.150 †
^{126}Zr	42.740±2.190
^{127}Zr	51.640±2.230 †
^{128}Zr	58.350±2.370
^{129}Zr	67.410±2.400 †
^{130}Zr	74.210±2.550
^{131}Zr	83.270±2.650 †
^{132}Zr	90.240±2.740
^{133}Zr	99.450±2.870 †
^{134}Zr	107.010±2.910 ‡
^{135}Zr	116.530±3.020 †
^{136}Zr	124.370±3.190 ‡
^{137}Zr	134.170±3.270 †
^{138}Zr	142.070±3.400 ‡
^{139}Zr	152.130±3.500 †
^{140}Zr	160.390±3.630 †
^{141}Zr	170.540±3.680 †
^{142}Zr	179.000±3.850 †
^{143}Zr	189.320±4.010 †
^{144}Zr	198.070±4.160 †
^{145}Zr	208.350±4.280 †
^{146}Zr	217.580±4.490 †
^{147}Zr	228.200±4.600 †
^{148}Zr	237.200±4.660 †
^{72}Nb	36.490±1.600 †
^{73}Nb	24.510±1.610 †
^{74}Nb	15.010±1.350 †
^{75}Nb	3.820±1.170 †
^{76}Nb	-4.700±1.130 †
^{77}Nb	-14.780±1.120 †
^{78}Nb	-22.030±0.950 †
^{79}Nb	-31.260±0.930 †
^{80}Nb	-37.610±0.930 †
^{81}Nb	-45.620±0.910 †

Isotope	Mass Excess
^{82}Nb	-50.610±0.970
^{83}Nb	-56.990±0.890
^{84}Nb	-60.480±0.830
^{85}Nb	-65.890±0.680
^{86}Nb	-68.910±0.620
^{87}Nb	-73.920±0.530
^{88}Nb	-76.490±0.540
^{89}Nb	-81.050±0.610
^{90}Nb	-82.980±0.540
^{91}Nb	-86.730±0.570
^{92}Nb	-86.570±0.560
^{93}Nb	-87.600±0.680
^{94}Nb	-86.780±0.650
^{95}Nb	-87.130±0.700
^{96}Nb	-85.710±0.780
^{97}Nb	-85.580±0.700
^{98}Nb	-83.180±0.760
^{99}Nb	-82.410±0.630
^{100}Nb	-79.830±0.750
^{101}Nb	-78.880±0.620
^{102}Nb	-76.040±0.600
^{103}Nb	-75.180±0.530
^{104}Nb	-71.920±0.570
^{105}Nb	-70.450±0.690
^{106}Nb	-66.330±0.820
^{107}Nb	-64.200±0.920
^{108}Nb	-59.860±1.020
^{109}Nb	-57.270±1.100
^{110}Nb	-52.740±1.050
^{111}Nb	-49.920±1.080
^{112}Nb	-44.860±1.130
^{113}Nb	-41.710±1.190
^{114}Nb	-36.440±1.330
^{115}Nb	-33.130±1.320
^{116}Nb	-27.770±1.350
^{117}Nb	-24.380±1.370
^{118}Nb	-19.060±1.500
^{119}Nb	-15.590±1.410
^{120}Nb	-10.190±1.560
^{121}Nb	-6.620±1.620
^{122}Nb	-1.240±1.630
^{123}Nb	2.730±1.750
^{124}Nb	10.210±1.860
^{125}Nb	16.560±1.890
^{126}Nb	24.350±2.000
^{127}Nb	30.970±2.000
^{128}Nb	39.210±2.100 †
^{129}Nb	45.900±2.180
^{130}Nb	54.390±2.200 †
^{131}Nb	61.110±2.400
^{132}Nb	69.580±2.480 †
^{133}Nb	76.650±2.600
^{134}Nb	85.490±2.690 †
^{135}Nb	92.840±2.730 ‡
^{136}Nb	102.040±2.890 †
^{137}Nb	109.660±2.960 ‡
^{138}Nb	118.860±3.050 †
^{139}Nb	126.820±3.210 ‡
^{140}Nb	136.300±3.320 †
^{141}Nb	144.420±3.400 †
^{142}Nb	153.970±3.500 †
^{143}Nb	162.350±3.650 †
^{144}Nb	172.070±3.840 †
^{145}Nb	180.730±3.950 †
^{146}Nb	190.700±4.130 †
^{147}Nb	199.610±4.260 †
^{148}Nb	209.640±4.380 †
^{149}Nb	218.770±4.450 †
^{70}Mo	84.440±1.770 †
^{71}Mo	72.180±1.770 †
^{72}Mo	58.020±1.850 †
^{73}Mo	47.310±1.870 †
^{74}Mo	34.250±1.570 †
^{75}Mo	24.580±1.380 †
^{76}Mo	12.290±1.340 †

Isotope	Mass Excess
^{77}Mo	3.880±1.340 †
^{78}Mo	-7.110±1.140 †
^{79}Mo	-14.440±1.130 †
^{80}Mo	-24.500±1.140 ‡
^{81}Mo	-31.120±1.130 ‡
^{82}Mo	-39.870±0.930
^{83}Mo	-45.240±0.890
^{84}Mo	-53.270±0.990
^{85}Mo	-56.680±0.900
^{86}Mo	-63.260±0.800
^{87}Mo	-66.380±0.720
^{88}Mo	-72.190±0.650
^{89}Mo	-74.990±0.640
^{90}Mo	-80.220±0.570
^{91}Mo	-82.230±0.510
^{92}Mo	-86.670±0.540
^{93}Mo	-86.780±0.570
^{94}Mo	-88.430±0.580
^{95}Mo	-87.860±0.630
^{96}Mo	-88.840±0.720
^{97}Mo	-87.690±0.740
^{98}Mo	-88.030±0.680
^{99}Mo	-85.940±0.640
^{100}Mo	-86.110±0.710
^{101}Mo	-83.510±0.710
^{102}Mo	-83.370±0.700
^{103}Mo	-80.800±0.640
^{104}Mo	-80.480±0.600
^{105}Mo	-77.200±0.630
^{106}Mo	-76.320±0.660
^{107}Mo	-72.320±0.800
^{108}Mo	-71.020±0.940
^{109}Mo	-66.540±0.970
^{110}Mo	-64.970±0.940
^{111}Mo	-60.270±0.960
^{112}Mo	-58.190±0.990
^{113}Mo	-53.170±1.060
^{114}Mo	-50.800±1.140
^{115}Mo	-45.680±1.210
^{116}Mo	-42.980±1.220
^{117}Mo	-37.650±1.230
^{118}Mo	-34.910±1.310
^{119}Mo	-29.780±1.350
^{120}Mo	-27.000±1.340
^{121}Mo	-21.760±1.440
^{122}Mo	-18.740±1.510
^{123}Mo	-13.500±1.510
^{124}Mo	-10.100±1.610
^{125}Mo	-2.610±1.660
^{126}Mo	3.110±1.700
^{127}Mo	11.020±1.780
^{128}Mo	16.970±1.860
^{129}Mo	25.190±1.890 †
^{130}Mo	31.320±1.980
^{131}Mo	39.730±2.040 †
^{132}Mo	45.860±2.190
^{133}Mo	54.430±2.310 †
^{134}Mo	61.130±2.380
^{135}Mo	69.760±2.490 †
^{136}Mo	76.790±2.580
^{137}Mo	85.760±2.630 †
^{138}Mo	92.790±2.700
^{139}Mo	102.050±2.810 †
^{140}Mo	109.420±3.000 ‡
^{141}Mo	118.770±3.070 †
^{142}Mo	126.290±3.190 ‡
^{143}Mo	135.750±3.270 †
^{144}Mo	143.540±3.470 ‡
^{145}Mo	153.170±3.620 †
^{146}Mo	161.520±3.780 †
^{147}Mo	171.170±3.900 †
^{148}Mo	179.490±4.030 †
^{149}Mo	189.640±4.170 †
^{150}Mo	198.130±4.220 †
^{151}Mo	208.540±4.340 †

Isotope	Mass Excess
^{152}Mo	217.260±4.400 †
^{153}Mo	227.790±4.510 †
^{154}Mo	236.880±4.600 †
^{76}Tc	37.040±1.570 †
^{77}Tc	24.870±1.570 †
^{78}Tc	15.550±1.350 †
^{79}Tc	4.480±1.340 †
^{80}Tc	-3.690±1.370 †
^{81}Tc	-14.020±1.360 †
^{82}Tc	-21.370±1.130 †
^{83}Tc	-30.510±1.110 †
^{84}Tc	-36.750±0.930 †
^{85}Tc	-44.710±0.910 †
^{86}Tc	-50.630±1.040
^{87}Tc	-57.300±0.920
^{88}Tc	-61.230±0.870
^{89}Tc	-67.270±0.800
^{90}Tc	-70.740±0.690
^{91}Tc	-76.060±0.600
^{92}Tc	-78.760±0.530
^{93}Tc	-83.470±0.560
^{94}Tc	-84.200±0.510
^{95}Tc	-86.100±0.640
^{96}Tc	-86.150±0.760
^{97}Tc	-87.400±0.810
^{98}Tc	-86.720±0.820
^{99}Tc	-87.380±0.750
^{100}Tc	-86.230±0.830
^{101}Tc	-86.380±0.790
^{102}Tc	-84.590±0.820
^{103}Tc	-84.720±0.840
^{104}Tc	-82.690±0.730
^{105}Tc	-82.340±0.800
^{106}Tc	-79.660±0.640
^{107}Tc	-78.890±0.710
^{108}Tc	-75.720±0.880
^{109}Tc	-74.290±0.870
^{110}Tc	-70.830±0.790
^{111}Tc	-69.080±0.830
^{112}Tc	-65.130±0.810
^{113}Tc	-63.080±0.870
^{114}Tc	-58.850±0.930
^{115}Tc	-56.620±0.960
^{116}Tc	-52.110±1.060
^{117}Tc	-49.440±1.020
^{118}Tc	-44.770±1.070
^{119}Tc	-42.210±1.090
^{120}Tc	-37.770±1.220
^{121}Tc	-35.160±1.160
^{122}Tc	-30.470±1.310
^{123}Tc	-27.590±1.360
^{124}Tc	-22.910±1.320
^{125}Tc	-19.500±1.360
^{126}Tc	-12.640±1.400
^{127}Tc	-6.810±1.430
^{128}Tc	0.440±1.580
^{129}Tc	6.380±1.590
^{130}Tc	14.020±1.630
^{131}Tc	20.070±1.760
^{132}Tc	27.890±1.780
^{133}Tc	34.120±1.990
^{134}Tc	42.320±2.050 †
^{135}Tc	48.810±2.160
^{136}Tc	57.120±2.310 †
^{137}Tc	63.930±2.310
^{138}Tc	72.300±2.380 †
^{139}Tc	79.390±2.480
^{140}Tc	88.060±2.630 †
^{141}Tc	95.300±2.760
^{142}Tc	104.040±2.900 †
^{143}Tc	111.480±3.000 ‡
^{144}Tc	120.360±3.110 †
^{145}Tc	128.050±3.280 ‡
^{146}Tc	137.380±3.500 †
^{147}Tc	145.400±3.580 ‡

Isotope	Mass Excess
^{148}Tc	154.460±3.730 †
^{149}Tc	162.900±3.880 †
^{150}Tc	172.410±3.990 †
^{151}Tc	180.760±4.000 †
^{152}Tc	190.510±4.150 †
^{153}Tc	199.180±4.230 †
^{154}Tc	209.230±4.360 †
^{155}Tc	218.300±4.460 †
^{156}Tc	228.750±4.510 †
^{157}Tc	237.810±4.610 †
^{74}Ru	84.780±2.060 †
^{75}Ru	72.830±1.820 †
^{76}Ru	58.490±1.800 †
^{77}Ru	47.840±1.810 †
^{78}Ru	34.760±1.560 †
^{79}Ru	25.360±1.570 †
^{80}Ru	13.440±1.610 †
^{81}Ru	5.010±1.620 †
^{82}Ru	-6.050±1.350 †
^{83}Ru	-13.800±1.330 †
^{84}Ru	-23.800±1.130 ‡
^{85}Ru	-29.960±1.120 ‡
^{86}Ru	-39.080±0.950
^{87}Ru	-45.100±0.920
^{88}Ru	-53.810±1.020
^{89}Ru	-57.960±0.940
^{90}Ru	-64.680±0.850
^{91}Ru	-68.220±0.770
^{92}Ru	-74.240±0.690
^{93}Ru	-77.210±0.640
^{94}Ru	-82.540±0.570
^{95}Ru	-83.520±0.660
^{96}Ru	-86.040±0.740
^{97}Ru	-86.360±0.730
^{98}Ru	-88.080±0.760
^{99}Ru	-87.730±0.820
^{100}Ru	-89.320±0.760
^{101}Ru	-88.150±0.820
^{102}Ru	-89.110±0.870
^{103}Ru	-87.590±0.840
^{104}Ru	-88.260±0.810
^{105}Ru	-86.210±0.900
^{106}Ru	-86.450±0.750
^{107}Ru	-83.880±0.660
^{108}Ru	-83.940±0.790
^{109}Ru	-80.650±0.820
^{110}Ru	-80.230±0.700
^{111}Ru	-76.590±0.710
^{112}Ru	-75.590±0.750
^{113}Ru	-71.670±0.750
^{114}Ru	-70.420±0.750
^{115}Ru	-66.320±0.790
^{116}Ru	-64.710±0.810
^{117}Ru	-60.220±0.880
^{118}Ru	-58.210±0.890
^{119}Ru	-53.720±0.900
^{120}Ru	-51.850±0.970
^{121}Ru	-47.580±1.070
^{122}Ru	-45.510±1.050
^{123}Ru	-40.960±1.190
^{124}Ru	-38.650±1.210
^{125}Ru	-33.970±1.170
^{126}Ru	-31.190±1.190
^{127}Ru	-24.210±1.240
^{128}Ru	-19.040±1.340
^{129}Ru	-11.810±1.410
^{130}Ru	-6.450±1.450
^{131}Ru	1.120±1.520
^{132}Ru	6.580±1.590
^{133}Ru	14.500±1.680
^{134}Ru	20.360±1.830
^{135}Ru	28.360±1.900
^{136}Ru	34.520±2.090
^{137}Ru	42.610±2.140 †
^{138}Ru	48.820±2.130

Isotope	Mass Excess
^{139}Ru	57.250±2.220 †
^{140}Ru	63.750±2.370
^{141}Ru	72.290±2.450 †
^{142}Ru	78.930±2.660
^{143}Ru	87.590±2.750 †
^{144}Ru	94.440±2.880
^{145}Ru	103.220±2.950 †
^{146}Ru	110.610±3.180 ‡
^{147}Ru	119.600±3.320 †
^{148}Ru	127.040±3.410 ‡
^{149}Ru	136.220±3.590 †
^{150}Ru	144.030±3.700 ‡
^{151}Ru	153.400±3.780 †
^{152}Ru	161.090±3.810 ‡
^{153}Ru	170.780±3.970 †
^{154}Ru	178.970±4.050 †
^{155}Ru	189.010±4.190 †
^{156}Ru	197.510±4.230 †
^{157}Ru	207.860±4.300 †
^{158}Ru	216.560±4.440 †
^{159}Ru	227.410±4.470 †
^{160}Ru	236.520±4.720 †
^{161}Ru	247.490±4.760 †
^{162}Ru	256.830±4.770 †
^{80}Rh	38.100±1.860 †
^{81}Rh	25.920±1.880 †
^{82}Rh	16.750±1.590 †
^{83}Rh	5.300±1.570 †
^{84}Rh	-3.310±1.350 †
^{85}Rh	-13.240±1.340 †
^{86}Rh	-20.560±1.140 †
^{87}Rh	-29.780±1.130 †
^{88}Rh	-36.610±0.970 †
^{89}Rh	-45.540±0.950 †
^{90}Rh	-51.620±0.950
^{91}Rh	-58.410±0.870
^{92}Rh	-62.660±0.820
^{93}Rh	-68.940±0.730
^{94}Rh	-72.530±0.650
^{95}Rh	-78.110±0.640
^{96}Rh	-79.710±0.690
^{97}Rh	-82.500±0.670
^{98}Rh	-83.300±0.700
^{99}Rh	-85.340±0.760
^{100}Rh	-85.910±0.820
^{101}Rh	-87.490±0.690
^{102}Rh	-87.130±0.820
^{103}Rh	-88.360±0.790
^{104}Rh	-87.380±0.800
^{105}Rh	-88.030±0.860
^{106}Rh	-86.570±0.640
^{107}Rh	-86.930±0.610
^{108}Rh	-85.190±0.620
^{109}Rh	-85.120±0.650
^{110}Rh	-82.830±0.630
^{111}Rh	-82.250±0.560
^{112}Rh	-79.350±0.610
^{113}Rh	-78.380±0.670
^{114}Rh	-75.260±0.650
^{115}Rh	-74.140±0.630
^{116}Rh	-70.660±0.720
^{117}Rh	-69.070±0.690
^{118}Rh	-65.240±0.760
^{119}Rh	-63.410±0.730
^{120}Rh	-59.610±0.800
^{121}Rh	-57.910±0.880
^{122}Rh	-54.180±0.980
^{123}Rh	-52.260±0.980
^{124}Rh	-48.270±1.110
^{125}Rh	-45.960±1.100
^{126}Rh	-41.900±1.080
^{127}Rh	-39.010±1.070
^{128}Rh	-32.690±1.200
^{129}Rh	-27.540±1.200
^{130}Rh	-20.890±1.290

Isotope	Mass Excess
^{131}Rh	-15.600±1.360
^{132}Rh	-8.620±1.390
^{133}Rh	-3.060±1.520
^{134}Rh	4.490±1.540
^{135}Rh	10.150±1.690
^{136}Rh	17.820±1.830
^{137}Rh	23.760±1.900
^{138}Rh	31.240±1.970
^{139}Rh	37.510±1.990
^{140}Rh	45.360±2.110
^{141}Rh	51.730±2.190
^{142}Rh	59.670±2.350
^{143}Rh	66.220±2.500
^{144}Rh	74.300±2.620 †
^{145}Rh	81.050±2.720
^{146}Rh	89.520±2.880 †
^{147}Rh	96.580±3.010
^{148}Rh	104.990±3.160 †
^{149}Rh	112.550±3.280
^{150}Rh	121.100±3.420 †
^{151}Rh	128.760±3.490 ‡
^{152}Rh	137.480±3.600 †
^{153}Rh	145.100±3.640 ‡
^{154}Rh	154.320±3.810 †
^{155}Rh	162.490±3.910 †
^{156}Rh	171.960±3.990 †
^{157}Rh	180.380±4.060 †
^{158}Rh	190.350±4.180 †
^{159}Rh	199.000±4.220 †
^{160}Rh	209.370±4.360 †
^{161}Rh	218.390±4.510 †
^{162}Rh	228.970±4.550 †
^{163}Rh	238.160±4.640 †
^{78}Pd	85.060±2.030 †
^{79}Pd	73.410±2.050 †
^{80}Pd	59.410±2.130 †
^{81}Pd	48.900±2.160 †
^{82}Pd	35.990±1.830 †
^{83}Pd	26.430±1.820 †
^{84}Pd	14.110±1.570 †
^{85}Pd	5.580±1.580 †
^{86}Pd	-5.510±1.360 †
^{87}Pd	-12.940±1.350 †
^{88}Pd	-22.960±1.170 ‡
^{89}Pd	-30.010±1.150 ‡
^{90}Pd	-39.620±0.970
^{91}Pd	-45.770±0.880
^{92}Pd	-54.370±0.970
^{93}Pd	-58.890±0.890
^{94}Pd	-65.790±0.750
^{95}Pd	-69.630±0.770
^{96}Pd	-75.830±0.680
^{97}Pd	-77.700±0.690
^{98}Pd	-80.960±0.730
^{99}Pd	-82.080±0.740
^{100}Pd	-85.060±0.750
^{101}Pd	-85.610±0.690
^{102}Pd	-88.000±0.730
^{103}Pd	-87.910±0.750
^{104}Pd	-89.670±0.720
^{105}Pd	-88.670±0.810
^{106}Pd	-89.910±0.640
^{107}Pd	-88.570±0.600
^{108}Pd	-89.760±0.700
^{109}Pd	-87.890±0.710
^{110}Pd	-88.830±0.690
^{111}Pd	-86.380±0.610
^{112}Pd	-86.530±0.470
^{113}Pd	-83.670±0.510
^{114}Pd	-83.500±0.430
^{115}Pd	-80.500±0.410
^{116}Pd	-80.000±0.450
^{117}Pd	-76.550±0.520
^{118}Pd	-75.620±0.540
^{119}Pd	-71.970±0.590

Isotope	Mass Excess
^{120}Pd	-70.830±0.590
^{121}Pd	-67.200±0.660
^{122}Pd	-66.040±0.730
^{123}Pd	-62.460±0.810
^{124}Pd	-61.100±0.820
^{125}Pd	-57.110±0.880
^{126}Pd	-55.420±0.900
^{127}Pd	-51.250±0.870
^{128}Pd	-49.020±0.890
^{129}Pd	-42.720±0.900
^{130}Pd	-38.140±0.970
^{131}Pd	-31.570±1.070
^{132}Pd	-26.860±1.100
^{133}Pd	-19.780±1.160
^{134}Pd	-14.600±1.250
^{135}Pd	-7.250±1.300
^{136}Pd	-1.920±1.500
^{137}Pd	5.530±1.540
^{138}Pd	10.870±1.620
^{139}Pd	18.410±1.720
^{140}Pd	24.100±1.770
^{141}Pd	31.810±1.820
^{142}Pd	37.580±2.010
^{143}Pd	45.430±2.130
^{144}Pd	51.400±2.300
^{145}Pd	59.380±2.410
^{146}Pd	65.820±2.570
^{147}Pd	73.970±2.630 †
^{148}Pd	80.450±2.790
^{149}Pd	88.980±2.970 †
^{150}Pd	95.900±3.050
^{151}Pd	104.300±3.160 †
^{152}Pd	111.310±3.270
^{153}Pd	119.960±3.380 †
^{154}Pd	127.110±3.440
^{155}Pd	136.310±3.640 †
^{156}Pd	143.920±3.660 ‡
^{157}Pd	153.300±3.770 †
^{158}Pd	161.340±3.880 ‡
^{159}Pd	171.260±3.920 †
^{160}Pd	179.430±4.080 †
^{161}Pd	189.710±4.120 †
^{162}Pd	198.340±4.260 †
^{163}Pd	208.770±4.380 †
^{164}Pd	217.610±4.360 †
^{165}Pd	228.370±4.480 †
^{166}Pd	237.430±4.640 †
^{167}Pd	248.380±4.720 †
^{168}Pd	257.460±4.840 †
^{84}Ag	38.700±1.810 †
^{85}Ag	26.450±1.820 †
^{86}Ag	16.760±1.580 †
^{87}Ag	5.570±1.580 †
^{88}Ag	-2.660±1.380 †
^{89}Ag	-12.900±1.370 †
^{90}Ag	-20.640±1.160 †
^{91}Ag	-30.320±1.060 †
^{92}Ag	-37.170±0.920 †
^{93}Ag	-46.040±0.900 †
^{94}Ag	-51.970±0.880
^{95}Ag	-59.120±0.810
^{96}Ag	-63.580±0.770
^{97}Ag	-70.050±0.710
^{98}Ag	-72.400±0.760
^{99}Ag	-75.980±0.790
^{100}Ag	-78.030±0.770
^{101}Ag	-80.980±0.680
^{102}Ag	-82.350±0.800
^{103}Ag	-85.010±0.720
^{104}Ag	-85.460±0.730
^{105}Ag	-87.200±0.770
^{106}Ag	-86.790±0.660
^{107}Ag	-88.150±0.610
^{108}Ag	-87.630±0.640
^{109}Ag	-88.690±0.680

Isotope	Mass Excess
^{110}Ag	-87.840±0.680
^{111}Ag	-88.610±0.650
^{112}Ag	-86.890±0.570
^{113}Ag	-87.080±0.410
^{114}Ag	-85.020±0.500
^{115}Ag	-84.970±0.450
^{116}Ag	-82.600±0.420
^{117}Ag	-82.120±0.470
^{118}Ag	-79.320±0.480
^{119}Ag	-78.580±0.450
^{120}Ag	-75.620±0.520
^{121}Ag	-74.650±0.530
^{122}Ag	-71.560±0.570
^{123}Ag	-70.550±0.720
^{124}Ag	-67.530±0.810
^{125}Ag	-66.160±0.760
^{126}Ag	-62.800±0.810
^{127}Ag	-61.000±0.790
^{128}Ag	-57.490±0.830
^{129}Ag	-55.280±0.770
^{130}Ag	-49.560±0.830
^{131}Ag	-45.050±0.860
^{132}Ag	-39.060±0.940
^{133}Ag	-34.260±1.010
^{134}Ag	-27.560±1.040
^{135}Ag	-22.570±1.130
^{136}Ag	-15.550±1.250
^{137}Ag	-10.440±1.320
^{138}Ag	-3.600±1.390
^{139}Ag	1.810±1.480
^{140}Ag	8.770±1.610
^{141}Ag	14.320±1.590
^{142}Ag	21.430±1.720
^{143}Ag	27.110±1.870
^{144}Ag	34.380±2.020
^{145}Ag	40.250±2.160
^{146}Ag	47.920±2.330
^{147}Ag	54.040±2.400
^{148}Ag	61.600±2.470
^{149}Ag	68.200±2.660
^{150}Ag	76.090±2.800
^{151}Ag	82.870±2.850
^{152}Ag	90.620±2.980
^{153}Ag	97.560±3.100
^{154}Ag	105.740±3.230 †
^{155}Ag	112.880±3.290
^{156}Ag	121.510±3.410 †
^{157}Ag	129.020±3.470 ‡
^{158}Ag	138.030±3.620 †
^{159}Ag	146.020±3.640 ‡
^{160}Ag	155.470±3.780 †
^{161}Ag	163.540±3.850 †
^{162}Ag	173.430±3.880 †
^{163}Ag	181.910±4.110 †
^{164}Ag	191.990±4.100 †
^{165}Ag	200.720±4.190 †
^{166}Ag	211.040±4.270 †
^{167}Ag	220.090±4.440 †
^{168}Ag	230.400±4.490 †
^{169}Ag	239.630±4.630 †
^{82}Cd	85.640±2.350 †
^{83}Cd	74.010±2.370 †
^{84}Cd	59.840±2.060 †
^{85}Cd	49.490±2.080 †
^{86}Cd	36.080±1.810 †
^{87}Cd	26.290±1.820 †
^{88}Cd	14.300±1.600 †
^{89}Cd	5.840±1.600 †
^{90}Cd	-5.080±1.370 †
^{91}Cd	-12.890±1.250 †
^{92}Cd	-23.270±1.100 ‡
^{93}Cd	-30.400±1.080 ‡
^{94}Cd	-39.880±0.920
^{95}Cd	-46.060±0.820
^{96}Cd	-54.750±0.820

Isotope	Mass Excess
^{97}Cd	-59.480±0.810
^{98}Cd	-66.430±0.840
^{99}Cd	-69.090±0.830
^{100}Cd	-73.610±0.860
^{101}Cd	-75.640±0.740
^{102}Cd	-79.400±0.840
^{103}Cd	-81.040±0.740
^{104}Cd	-84.240±0.750
^{105}Cd	-84.660±0.900
^{106}Cd	-87.000±0.690
^{107}Cd	-86.710±0.500
^{108}Cd	-88.890±0.600
^{109}Cd	-88.250±0.690
^{110}Cd	-90.320±0.690
^{111}Cd	-89.290±0.610
^{112}Cd	-90.810±0.650
^{113}Cd	-89.130±0.600
^{114}Cd	-90.110±0.580
^{115}Cd	-88.180±0.540
^{116}Cd	-88.750±0.550
^{117}Cd	-86.400±0.520
^{118}Cd	-86.580±0.530
^{119}Cd	-83.960±0.540
^{120}Cd	-83.910±0.520
^{121}Cd	-81.120±0.530
^{122}Cd	-80.700±0.480
^{123}Cd	-77.750±0.520
^{124}Cd	-77.300±0.610
^{125}Cd	-74.270±0.660
^{126}Cd	-73.540±0.610
^{127}Cd	-70.060±0.650
^{128}Cd	-68.920±0.690
^{129}Cd	-65.430±0.720
^{130}Cd	-63.790±0.660
^{131}Cd	-58.150±0.740
^{132}Cd	-54.230±0.790
^{133}Cd	-48.140±0.870
^{134}Cd	-43.710±0.890
^{135}Cd	-37.210±0.940
^{136}Cd	-32.550±1.040
^{137}Cd	-25.750±1.060
^{138}Cd	-21.250±1.160
^{139}Cd	-14.340±1.240
^{140}Cd	-9.520±1.370
^{141}Cd	-2.690±1.430
^{142}Cd	2.260±1.480
^{143}Cd	9.290±1.580
^{144}Cd	14.380±1.740
^{145}Cd	21.550±1.860
^{146}Cd	27.110±2.060
^{147}Cd	34.460±2.130
^{148}Cd	39.990±2.220
^{149}Cd	47.680±2.320
^{150}Cd	53.630±2.460
^{151}Cd	61.390±2.570
^{152}Cd	67.510±2.670
^{153}Cd	75.190±2.810
^{154}Cd	81.660±2.930
^{155}Cd	89.820±3.070 †
^{156}Cd	96.400±3.070
^{157}Cd	104.930±3.220 †
^{158}Cd	112.080±3.340
^{159}Cd	121.030±3.400 †
^{160}Cd	128.550±3.540 ‡
^{161}Cd	137.900±3.570 †
^{162}Cd	145.580±3.620 ‡
^{163}Cd	155.320±3.750 †
^{164}Cd	163.450±3.850 †
^{165}Cd	173.420±3.960 †
^{166}Cd	181.710±4.010 †
^{167}Cd	192.020±4.100 †
^{168}Cd	200.420±4.230 †
^{169}Cd	210.890±4.320 †
^{170}Cd	219.710±4.390 †
^{171}Cd	230.250±4.530 †

Isotope	Mass Excess
^{172}Cd	239.420±4.660 †
^{88}In	38.540±1.830 †
^{89}In	26.320±1.840 †
^{90}In	17.180±1.580 †
^{91}In	6.180±1.460 †
^{92}In	-2.320±1.280 †
^{93}In	-12.980±1.270 †
^{94}In	-20.720±1.090 †
^{95}In	-30.450±0.980 †
^{96}In	-37.250±0.840 †
^{97}In	-46.210±0.810 †
^{98}In	-52.240±0.950
^{99}In	-59.510±0.890
^{100}In	-63.100±0.940
^{101}In	-67.600±0.850
^{102}In	-70.440±0.860
^{103}In	-74.480±0.730
^{104}In	-76.650±0.800
^{105}In	-79.820±0.830
^{106}In	-80.850±0.730
^{107}In	-83.300±0.580
^{108}In	-83.830±0.530
^{109}In	-85.890±0.610
^{110}In	-86.250±0.600
^{111}In	-88.160±0.660
^{112}In	-87.870±0.670
^{113}In	-89.420±0.610
^{114}In	-88.540±0.560
^{115}In	-89.650±0.520
^{116}In	-88.330±0.520
^{117}In	-88.940±0.550
^{118}In	-87.240±0.530
^{119}In	-87.600±0.540
^{120}In	-85.680±0.540
^{121}In	-85.790±0.530
^{122}In	-83.550±0.520
^{123}In	-83.270±0.500
^{124}In	-80.890±0.540
^{125}In	-80.430±0.480
^{126}In	-78.030±0.560
^{127}In	-77.180±0.460
^{128}In	-74.370±0.520
^{129}In	-73.250±0.480
^{130}In	-70.330±0.490
^{131}In	-68.760±0.480
^{132}In	-63.710±0.580
^{133}In	-59.690±0.660
^{134}In	-53.980±0.680
^{135}In	-49.750±0.750
^{136}In	-43.570±0.790
^{137}In	-39.130±0.830
^{138}In	-32.940±0.870
^{139}In	-28.370±0.960
^{140}In	-22.050±1.120
^{141}In	-17.360±1.150
^{142}In	-11.140±1.280
^{143}In	-6.270±1.310
^{144}In	0.170±1.400
^{145}In	5.170±1.550
^{146}In	12.030±1.750
^{147}In	17.270±1.850
^{148}In	24.030±1.940
^{149}In	29.680±2.050
^{150}In	36.730±2.090
^{151}In	42.540±2.220
^{152}In	49.640±2.370
^{153}In	55.700±2.460
^{154}In	62.910±2.620
^{155}In	69.360±2.750
^{156}In	76.960±2.810
^{157}In	83.440±2.850
^{158}In	91.600±3.050 †
^{159}In	98.690±3.070
^{160}In	107.170±3.230 †
^{161}In	114.590±3.270

Isotope	Mass Excess
^{162}In	123.550±3.310 †
^{163}In	131.090±3.440 ‡
^{164}In	140.470±3.450 †
^{165}In	148.500±3.650 ‡
^{166}In	158.020±3.720 †
^{167}In	166.300±3.780 †
^{168}In	175.970±3.830 †
^{169}In	184.530±3.990 †
^{170}In	194.590±4.010 †
^{171}In	203.190±4.180 †
^{172}In	213.360±4.330 †
^{173}In	222.390±4.400 †
^{174}In	232.680±4.490 †
^{175}In	242.630±4.610 †
^{86}Sn	85.770±2.310 †
^{87}Sn	74.150±2.340 †
^{88}Sn	59.840±2.070 †
^{89}Sn	49.020±2.100 †
^{90}Sn	36.130±1.800 †
^{91}Sn	26.920±1.680 †
^{92}Sn	15.220±1.480 †
^{93}Sn	6.440±1.480 †
^{94}Sn	-4.830±1.270 †
^{95}Sn	-12.820±1.150 †
^{96}Sn	-23.180±1.000 ‡
^{97}Sn	-30.250±0.970 ‡
^{98}Sn	-39.680±0.920 ‡
^{99}Sn	-46.030±0.900
^{100}Sn	-55.430±1.080
^{101}Sn	-59.010±1.020
^{102}Sn	-64.320±1.000
^{103}Sn	-67.430±0.860
^{104}Sn	-72.000±0.880
^{105}Sn	-74.160±0.960
^{106}Sn	-77.920±0.730
^{107}Sn	-79.060±0.700
^{108}Sn	-82.340±0.630
^{109}Sn	-82.750±0.620
^{110}Sn	-85.810±0.640
^{111}Sn	-86.010±0.590
^{112}Sn	-88.650±0.630
^{113}Sn	-88.400±0.560
^{114}Sn	-90.750±0.560
^{115}Sn	-89.990±0.510
^{116}Sn	-91.720±0.530
^{117}Sn	-90.440±0.490
^{118}Sn	-91.690±0.520
^{119}Sn	-90.180±0.500
^{120}Sn	-91.240±0.510
^{121}Sn	-89.480±0.470
^{122}Sn	-90.140±0.520
^{123}Sn	-88.040±0.540
^{124}Sn	-88.320±0.510
^{125}Sn	-85.930±0.520
^{126}Sn	-86.110±0.500
^{127}Sn	-83.590±0.580
^{128}Sn	-83.400±0.520
^{129}Sn	-80.610±0.460
^{130}Sn	-80.060±0.390
^{131}Sn	-77.220±0.370
^{132}Sn	-76.240±0.430
^{133}Sn	-71.080±0.540
^{134}Sn	-67.440±0.550
^{135}Sn	-61.930±0.660
^{136}Sn	-58.030±0.730
^{137}Sn	-52.070±0.680
^{138}Sn	-48.240±0.730
^{139}Sn	-41.980±0.820
^{140}Sn	-38.000±0.970
^{141}Sn	-31.810±0.980
^{142}Sn	-27.730±1.130
^{143}Sn	-21.580±1.230
^{144}Sn	-17.300±1.240
^{145}Sn	-10.960±1.320
^{146}Sn	-6.270±1.530

Isotope	Mass Excess
^{147}Sn	0.270±1.650
^{148}Sn	4.920±1.750
^{149}Sn	11.800±1.870
^{150}Sn	16.820±1.910
^{151}Sn	23.720±1.950
^{152}Sn	28.880±2.120
^{153}Sn	35.920±2.260
^{154}Sn	41.500±2.350
^{155}Sn	48.690±2.540
^{156}Sn	54.580±2.580
^{157}Sn	62.080±2.670
^{158}Sn	68.190±2.750
^{159}Sn	76.310±2.880 †
^{160}Sn	82.920±3.000
^{161}Sn	91.300±3.070 †
^{162}Sn	98.330±3.100
^{163}Sn	107.140±3.210 †
^{164}Sn	114.320±3.220
^{165}Sn	123.610±3.340 †
^{166}Sn	131.190±3.510 ‡
^{167}Sn	140.700±3.570 †
^{168}Sn	148.330±3.600 ‡
^{169}Sn	158.160±3.680 †
^{170}Sn	166.310±3.780 †
^{171}Sn	176.160±3.870 †
^{172}Sn	184.390±4.050 †
^{173}Sn	194.420±4.150 †
^{174}Sn	203.150±4.190 †
^{175}Sn	213.490±4.360 †
^{176}Sn	222.770±4.510 †
^{177}Sn	234.860±4.600 †
^{178}Sn	245.510±4.720 †
^{96}Sb	-0.790±1.160 †
^{97}Sb	-11.410±1.130 †
^{98}Sb	-18.950±1.080 †
^{99}Sb	-28.710±1.060 †
^{100}Sb	-35.990±1.050 †
^{101}Sb	-45.370±1.030 †
^{102}Sb	-50.650±1.090 †
^{103}Sb	-56.230±1.050 †
^{104}Sb	-59.880±1.020 †
^{105}Sb	-64.430±0.960 †
^{106}Sb	-67.180±0.850
^{107}Sb	-71.060±0.670
^{108}Sb	-73.020±0.750
^{109}Sb	-76.170±0.650
^{110}Sb	-77.590±0.640
^{111}Sb	-80.490±0.690
^{112}Sb	-81.420±0.650
^{113}Sb	-84.110±0.680
^{114}Sb	-84.650±0.610
^{115}Sb	-87.120±0.610
^{116}Sb	-86.990±0.520
^{117}Sb	-88.750±0.500
^{118}Sb	-88.110±0.520
^{119}Sb	-89.550±0.540
^{120}Sb	-88.730±0.550
^{121}Sb	-89.950±0.530
^{122}Sb	-88.740±0.510
^{123}Sb	-89.540±0.460
^{124}Sb	-88.010±0.500
^{125}Sb	-88.280±0.540
^{126}Sb	-86.520±0.600
^{127}Sb	-86.580±0.580
^{128}Sb	-84.730±0.610
^{129}Sb	-84.560±0.510
^{130}Sb	-82.340±0.510
^{131}Sb	-81.860±0.470
^{132}Sb	-79.620±0.470
^{133}Sb	-78.540±0.480
^{134}Sb	-73.750±0.440
^{135}Sb	-70.310±0.540
^{136}Sb	-65.130±0.620
^{137}Sb	-61.450±0.620
^{138}Sb	-56.100±0.580

Isotope	Mass Excess
^{139}Sb	-52.200±0.640
^{140}Sb	-46.530±0.800
^{141}Sb	-42.670±0.780
^{142}Sb	-37.090±0.930
^{143}Sb	-33.090±1.040
^{144}Sb	-27.530±1.110
^{145}Sb	-23.350±1.140
^{146}Sb	-17.310±1.290
^{147}Sb	-12.950±1.400
^{148}Sb	-7.000±1.510
^{149}Sb	-2.220±1.660
^{150}Sb	4.020±1.700
^{151}Sb	8.890±1.760
^{152}Sb	15.140±1.850
^{153}Sb	20.240±2.020
^{154}Sb	26.800±2.150
^{155}Sb	32.370±2.260
^{156}Sb	38.990±2.350
^{157}Sb	44.780±2.450
^{158}Sb	51.920±2.580
^{159}Sb	57.970±2.580
^{160}Sb	65.610±2.800
^{161}Sb	72.130±2.830
^{162}Sb	80.120±2.890
^{163}Sb	87.000±2.990
^{164}Sb	95.460±2.980 †
^{165}Sb	102.540±3.120
^{166}Sb	111.380±3.200 †
^{167}Sb	118.940±3.360 ‡
^{168}Sb	127.820±3.410 †
^{169}Sb	135.610±3.450 ‡
^{170}Sb	145.020±3.470 †
^{171}Sb	152.960±3.640 ‡
^{172}Sb	162.430±3.750 †
^{173}Sb	170.530±3.870 †
^{174}Sb	180.250±3.940 †
^{175}Sb	189.040±4.060 †
^{176}Sb	198.710±4.260 †
^{177}Sb	207.980±4.300 †
^{178}Sb	219.700±4.430 †
^{179}Sb	230.300±4.610 †
^{180}Sb	242.200±4.720 †
^{181}Sb	252.690±4.840 †
^{95}Te	31.280±1.520 †
^{96}Te	19.140±1.330 †
^{97}Te	10.260±1.310 †
^{98}Te	-0.840±1.250 †
^{99}Te	-8.710±1.240 †
^{100}Te	-19.400±1.230 †
^{101}Te	-26.660±1.220 †
^{102}Te	-36.850±1.070 †
^{103}Te	-42.400±1.050 †
^{104}Te	-49.780±1.260
^{105}Te	-53.410±1.150
^{106}Te	-58.560±0.980
^{107}Te	-61.420±0.900
^{108}Te	-66.130±0.860
^{109}Te	-67.960±0.770
^{110}Te	-72.120±0.560
^{111}Te	-73.380±0.640
^{112}Te	-77.010±0.690
^{113}Te	-77.990±0.640
^{114}Te	-81.460±0.610
^{115}Te	-82.130±0.620
^{116}Te	-85.230±0.610
^{117}Te	-85.120±0.510
^{118}Te	-87.530±0.500
^{119}Te	-87.080±0.530
^{120}Te	-89.210±0.510
^{121}Te	-88.560±0.500
^{122}Te	-90.330±0.480
^{123}Te	-89.260±0.450
^{124}Te	-90.620±0.440
^{125}Te	-89.080±0.520
^{126}Te	-89.990±0.600

Isotope	Mass Excess
^{127}Te	-88.110±0.660
^{128}Te	-88.830±0.630
^{129}Te	-87.000±0.600
^{130}Te	-87.400±0.530
^{131}Te	-85.260±0.540
^{132}Te	-85.370±0.530
^{133}Te	-83.020±0.470
^{134}Te	-82.320±0.450
^{135}Te	-77.740±0.440
^{136}Te	-74.620±0.500
^{137}Te	-69.660±0.550
^{138}Te	-66.580±0.550
^{139}Te	-61.170±0.570
^{140}Te	-57.850±0.630
^{141}Te	-52.310±0.610
^{142}Te	-49.070±0.770
^{143}Te	-43.560±0.860
^{144}Te	-40.150±0.960
^{145}Te	-34.690±1.050
^{146}Te	-30.820±1.150
^{147}Te	-25.100±1.190
^{148}Te	-21.330±1.310
^{149}Te	-15.250±1.480
^{150}Te	-11.120±1.520
^{151}Te	-5.020±1.580
^{152}Te	-0.800±1.670
^{153}Te	5.390±1.740
^{154}Te	10.010±1.930
^{155}Te	16.550±2.070
^{156}Te	21.550±2.110
^{157}Te	28.080±2.250
^{158}Te	33.510±2.370
^{159}Te	40.590±2.430
^{160}Te	46.170±2.530
^{161}Te	53.710±2.640
^{162}Te	59.840±2.660
^{163}Te	67.680±2.810
^{164}Te	74.210±2.790
^{165}Te	82.560±2.890 †
^{166}Te	89.200±2.990
^{167}Te	98.020±3.050 †
^{168}Te	104.950±3.200
^{169}Te	113.980±3.250 †
^{170}Te	121.360±3.240 ‡
^{171}Te	130.560±3.330 †
^{172}Te	138.130±3.540 ‡
^{173}Te	147.460±3.580 †
^{174}Te	155.260±3.670 ‡
^{175}Te	165.040±3.820 †
^{176}Te	173.150±3.990 †
^{177}Te	182.820±4.070 †
^{178}Te	191.710±4.160 †
^{179}Te	203.380±4.330 †
^{180}Te	213.560±4.470 †
^{181}Te	225.100±4.580 †
^{182}Te	235.270±4.740 †
^{183}Te	247.450±4.870 †
^{100}I	3.260±1.420 †
^{101}I	-7.410±1.410 †
^{102}I	-15.480±1.250 †
^{103}I	-25.950±1.240 †
^{104}I	-32.030±1.170 †
^{105}I	-39.390±1.150 †
^{106}I	-44.740±1.180 †
^{107}I	-50.000±1.090 †
^{108}I	-53.690±1.060 †
^{109}I	-58.270±0.930 †
^{110}I	-61.120±0.780
^{111}I	-65.110±0.620
^{112}I	-67.100±0.610
^{113}I	-70.780±0.710
^{114}I	-72.540±0.630
^{115}I	-76.150±0.590
^{116}I	-77.440±0.530
^{117}I	-80.560±0.510

Isotope	Mass Excess
^{118}I	-81.110±0.500
^{119}I	-83.700±0.470
^{120}I	-83.950±0.480
^{121}I	-86.240±0.500
^{122}I	-86.140±0.480
^{123}I	-88.050±0.430
^{124}I	-87.540±0.410
^{125}I	-88.900±0.390
^{126}I	-87.990±0.520
^{127}I	-88.780±0.590
^{128}I	-87.570±0.630
^{129}I	-88.310±0.530
^{130}I	-87.050±0.610
^{131}I	-87.520±0.520
^{132}I	-85.970±0.600
^{133}I	-85.980±0.530
^{134}I	-84.000±0.470
^{135}I	-83.500±0.490
^{136}I	-79.250±0.470
^{137}I	-76.350±0.430
^{138}I	-71.990±0.440
^{139}I	-68.850±0.420
^{140}I	-64.020±0.510
^{141}I	-60.840±0.510
^{142}I	-55.910±0.570
^{143}I	-52.740±0.680
^{144}I	-47.830±0.740
^{145}I	-44.510±0.850
^{146}I	-39.360±0.990
^{147}I	-35.810±0.990
^{148}I	-30.680±1.060
^{149}I	-26.780±1.210
^{150}I	-21.350±1.310
^{151}I	-17.360±1.360
^{152}I	-11.910±1.450
^{153}I	-7.760±1.540
^{154}I	-2.050±1.620
^{155}I	2.560±1.790
^{156}I	8.540±1.880
^{157}I	13.440±1.950
^{158}I	19.610±2.140
^{159}I	24.980±2.170
^{160}I	31.580±2.340
^{161}I	37.060±2.320
^{162}I	44.220±2.430
^{163}I	50.200±2.530
^{164}I	57.690±2.550
^{165}I	64.110±2.650
^{166}I	72.020±2.710
^{167}I	78.640±2.800
^{168}I	86.820±2.860 †
^{169}I	93.910±3.010
^{170}I	102.530±2.990 †
^{171}I	109.700±3.050
^{172}I	118.530±3.170 †
^{173}I	125.960±3.310 ‡
^{174}I	134.990±3.310 †
^{175}I	142.840±3.490 ‡
^{176}I	151.950±3.690 †
^{177}I	160.050±3.730 †
^{178}I	169.340±3.860 †
^{179}I	178.190±3.990 †
^{180}I	189.430±4.120 †
^{181}I	199.250±4.260 †
^{182}I	210.480±4.420 †
^{183}I	220.640±4.490 †
^{184}I	232.590±4.740 †
^{185}I	242.710±4.820 †
^{99}Xe	35.650±1.620 †
^{100}Xe	23.300±1.620 †
^{101}Xe	14.520±1.620 †
^{102}Xe	3.040±1.440 †
^{103}Xe	-5.300±1.430 †
^{104}Xe	-16.310±1.370 †
^{105}Xe	-22.360±1.350 †

Isotope	Mass Excess
^{106}Xe	-30.320±1.170 †
^{107}Xe	-35.790±1.090 †
^{108}Xe	-43.570±1.210 ‡
^{109}Xe	-47.130±1.140
^{110}Xe	-52.730±0.940
^{111}Xe	-55.400±0.870
^{112}Xe	-60.130±0.700
^{113}Xe	-62.160±0.730
^{114}Xe	-66.630±0.800
^{115}Xe	-68.530±0.630
^{116}Xe	-72.750±0.600
^{117}Xe	-74.070±0.510
^{118}Xe	-77.850±0.530
^{119}Xe	-78.570±0.490
^{120}Xe	-81.860±0.480
^{121}Xe	-82.270±0.480
^{122}Xe	-85.110±0.440
^{123}Xe	-85.150±0.410
^{124}Xe	-87.620±0.320
^{125}Xe	-87.110±0.340
^{126}Xe	-89.100±0.380
^{127}Xe	-88.070±0.510
^{128}Xe	-89.530±0.600
^{129}Xe	-88.330±0.620
^{130}Xe	-89.650±0.460
^{131}Xe	-88.460±0.560
^{132}Xe	-89.530±0.580
^{133}Xe	-87.870±0.510
^{134}Xe	-88.260±0.490
^{135}Xe	-86.480±0.550
^{136}Xe	-86.310±0.470
^{137}Xe	-82.280±0.430
^{138}Xe	-79.990±0.400
^{139}Xe	-75.560±0.430
^{140}Xe	-73.010±0.490
^{141}Xe	-68.310±0.380
^{142}Xe	-65.730±0.440
^{143}Xe	-60.880±0.550
^{144}Xe	-58.300±0.660
^{145}Xe	-53.480±0.690
^{146}Xe	-50.470±0.890
^{147}Xe	-45.650±0.900
^{148}Xe	-42.690±0.930
^{149}Xe	-37.440±1.010
^{150}Xe	-34.180±1.070
^{151}Xe	-28.890±1.180
^{152}Xe	-25.550±1.270
^{153}Xe	-20.170±1.330
^{154}Xe	-16.480±1.420
^{155}Xe	-10.790±1.520
^{156}Xe	-6.750±1.640
^{157}Xe	-0.870±1.740
^{158}Xe	3.670±1.850
^{159}Xe	9.780±1.970
^{160}Xe	14.680±2.100
^{161}Xe	21.180±2.160
^{162}Xe	26.280±2.150
^{163}Xe	33.280±2.330
^{164}Xe	38.910±2.320
^{165}Xe	46.290±2.450
^{166}Xe	52.270±2.500
^{167}Xe	60.170±2.570
^{168}Xe	66.150±2.650
^{169}Xe	74.490±2.700 †
^{170}Xe	81.160±2.790
^{171}Xe	89.570±2.850 †
^{172}Xe	96.360±2.930
^{173}Xe	105.060±2.970 †
^{174}Xe	112.180±3.070
^{175}Xe	121.280±3.180 †
^{176}Xe	128.450±3.390 ‡
^{177}Xe	137.550±3.460 †
^{178}Xe	145.280±3.550 ‡
^{179}Xe	154.520±3.720 †
^{180}Xe	162.940±3.810 †

Isotope	Mass Excess
^{181}Xe	173.830±3.940 †
^{182}Xe	183.330±4.130 †
^{183}Xe	194.550±4.180 †
^{184}Xe	204.490±4.380 †
^{185}Xe	216.010±4.550 †
^{186}Xe	225.700±4.620 †
^{187}Xe	237.150±4.770 †
^{188}Xe	247.190±4.940 †
^{104}Cs	6.910±1.570 †
^{105}Cs	-4.070±1.560 †
^{106}Cs	-10.720±1.360 †
^{107}Cs	-18.790±1.280 †
^{108}Cs	-25.090±1.160 †
^{109}Cs	-32.740±1.150 †
^{110}Cs	-38.450±1.170 †
^{111}Cs	-43.880±1.030 †
^{112}Cs	-47.290±0.910 †
^{113}Cs	-52.060±0.810 †
^{114}Cs	-54.880±0.830
^{115}Cs	-59.480±0.810
^{116}Cs	-61.990±0.680
^{117}Cs	-66.250±0.610
^{118}Cs	-68.220±0.560
^{119}Cs	-72.180±0.590
^{120}Cs	-73.600±0.540
^{121}Cs	-77.050±0.510
^{122}Cs	-78.010±0.440
^{123}Cs	-81.000±0.370
^{124}Cs	-81.590±0.350
^{125}Cs	-84.060±0.370
^{126}Cs	-84.180±0.440
^{127}Cs	-86.050±0.470
^{128}Cs	-85.690±0.500
^{129}Cs	-87.160±0.640
^{130}Cs	-86.540±0.650
^{131}Cs	-87.930±0.510
^{132}Cs	-87.330±0.590
^{133}Cs	-88.300±0.590
^{134}Cs	-87.020±0.610
^{135}Cs	-87.600±0.600
^{136}Cs	-86.160±0.590
^{137}Cs	-86.200±0.620
^{138}Cs	-82.770±0.560
^{139}Cs	-80.420±0.550
^{140}Cs	-76.580±0.540
^{141}Cs	-74.160±0.470
^{142}Cs	-70.070±0.450
^{143}Cs	-67.570±0.440
^{144}Cs	-63.300±0.440
^{145}Cs	-60.820±0.600
^{146}Cs	-56.310±0.700
^{147}Cs	-53.630±0.840
^{148}Cs	-49.390±0.810
^{149}Cs	-46.310±0.900
^{150}Cs	-41.700±0.900
^{151}Cs	-38.580±0.990
^{152}Cs	-33.940±1.130
^{153}Cs	-30.670±1.180
^{154}Cs	-25.760±1.250
^{155}Cs	-22.090±1.370
^{156}Cs	-16.960±1.400
^{157}Cs	-13.020±1.540
^{158}Cs	-7.510±1.670
^{159}Cs	-3.020±1.710
^{160}Cs	2.610±1.920
^{161}Cs	7.410±1.950
^{162}Cs	13.530±2.010
^{163}Cs	18.480±2.060
^{164}Cs	25.130±2.120
^{165}Cs	30.650±2.240
^{166}Cs	37.590±2.340
^{167}Cs	43.560±2.390
^{168}Cs	50.810±2.440
^{169}Cs	56.950±2.530
^{170}Cs	64.880±2.510

Isotope	Mass Excess
^{171}Cs	71.340±2.670
^{172}Cs	79.380±2.760
^{173}Cs	86.030±2.770
^{174}Cs	94.420±2.780 †
^{175}Cs	101.610±2.990
^{176}Cs	110.020±3.130 †
^{177}Cs	117.190±3.210
^{178}Cs	125.920±3.330 †
^{179}Cs	133.600±3.450 ‡
^{180}Cs	142.410±3.580 †
^{181}Cs	150.480±3.670 ‡
^{182}Cs	161.050±3.850 †
^{183}Cs	170.550±3.920 †
^{184}Cs	181.530±4.110 †
^{185}Cs	191.050±4.220 †
^{186}Cs	202.140±4.380 †
^{187}Cs	211.670±4.480 †
^{188}Cs	222.740±4.630 †
^{189}Cs	232.810±4.730 †
^{190}Cs	243.970±4.830 †
^{191}Cs	254.040±4.970 †
^{103}Ba	39.470±1.850 †
^{104}Ba	27.180±1.780 †
^{105}Ba	18.320±1.780 †
^{106}Ba	6.740±1.560 †
^{107}Ba	-0.020±1.470 †
^{108}Ba	-8.920±1.350 †
^{109}Ba	-15.090±1.330 †
^{110}Ba	-23.750±1.160 †
^{111}Ba	-29.300±1.030 †
^{112}Ba	-37.670±1.150 ‡
^{113}Ba	-41.120±1.060
^{114}Ba	-46.680±0.940
^{115}Ba	-49.630±0.900
^{116}Ba	-54.850±0.880
^{117}Ba	-57.400±0.740
^{118}Ba	-62.300±0.740
^{119}Ba	-64.460±0.680
^{120}Ba	-69.110±0.720
^{121}Ba	-70.700±0.650
^{122}Ba	-74.690±0.620
^{123}Ba	-75.790±0.580
^{124}Ba	-79.340±0.550
^{125}Ba	-79.940±0.520
^{126}Ba	-83.030±0.490
^{127}Ba	-83.040±0.460
^{128}Ba	-85.570±0.450
^{129}Ba	-85.220±0.540
^{130}Ba	-87.270±0.550
^{131}Ba	-86.720±0.500
^{132}Ba	-88.700±0.550
^{133}Ba	-88.010±0.630
^{134}Ba	-89.350±0.540
^{135}Ba	-88.260±0.650
^{136}Ba	-89.180±0.560
^{137}Ba	-87.960±0.600
^{138}Ba	-88.600±0.650
^{139}Ba	-85.110±0.610
^{140}Ba	-83.340±0.600
^{141}Ba	-79.630±0.510
^{142}Ba	-77.820±0.450
^{143}Ba	-73.810±0.450
^{144}Ba	-71.900±0.420
^{145}Ba	-67.730±0.440
^{146}Ba	-65.560±0.560
^{147}Ba	-61.370±0.590
^{148}Ba	-59.270±0.670
^{149}Ba	-54.910±0.750
^{150}Ba	-52.470±0.740
^{151}Ba	-48.000±0.780
^{152}Ba	-45.540±0.880
^{153}Ba	-40.960±0.960
^{154}Ba	-38.160±1.050
^{155}Ba	-33.270±1.150
^{156}Ba	-30.170±1.180

Isotope	Mass Excess
^{157}Ba	-25.140±1.240
^{158}Ba	-21.560±1.390
^{159}Ba	-16.100±1.470
^{160}Ba	-12.090±1.620
^{161}Ba	-6.560±1.710
^{162}Ba	-2.140±1.740
^{163}Ba	3.830±1.860
^{164}Ba	8.410±1.810
^{165}Ba	14.960±1.970
^{166}Ba	20.040±2.050
^{167}Ba	26.970±2.140
^{168}Ba	32.290±2.180
^{169}Ba	39.710±2.220
^{170}Ba	45.430±2.260
^{171}Ba	53.150±2.310
^{172}Ba	59.240±2.510
^{173}Ba	67.140±2.510
^{174}Ba	73.490±2.470
^{175}Ba	81.940±2.590 †
^{176}Ba	88.450±2.830
^{177}Ba	96.860±2.840 †
^{178}Ba	103.650±2.980
^{179}Ba	112.320±3.130 †
^{180}Ba	119.580±3.220
^{181}Ba	128.040±3.360 †
^{182}Ba	135.790±3.500 ‡
^{183}Ba	146.360±3.570 †
^{184}Ba	155.620±3.780 †
^{185}Ba	166.190±3.880 †
^{186}Ba	175.260±3.990 †
^{187}Ba	186.210±4.180 †
^{188}Ba	195.360±4.280 †
^{189}Ba	206.460±4.360 †
^{190}Ba	215.770±4.520 †
^{191}Ba	226.870±4.610 †
^{192}Ba	236.390±4.800 †
^{109}La	4.000±1.530 †
^{110}La	-3.180±1.340 †
^{111}La	-11.680±1.200 †
^{112}La	-17.960±1.080 †
^{113}La	-26.370±1.060 †
^{114}La	-32.300±1.210 †
^{115}La	-37.990±1.030 †
^{116}La	-41.560±1.000 †
^{117}La	-46.810±0.930 †
^{118}La	-50.010±0.870 †
^{119}La	-55.090±0.800
^{120}La	-57.940±0.780
^{121}La	-62.760±0.770
^{122}La	-64.890±0.740
^{123}La	-69.040±0.750
^{124}La	-70.700±0.730
^{125}La	-74.240±0.690
^{126}La	-75.470±0.650
^{127}La	-78.440±0.580
^{128}La	-79.110±0.560
^{129}La	-81.670±0.550
^{130}La	-81.890±0.580
^{131}La	-84.010±0.540
^{132}La	-84.060±0.530
^{133}La	-85.930±0.550
^{134}La	-85.610±0.580
^{135}La	-87.150±0.580
^{136}La	-86.400±0.560
^{137}La	-87.540±0.610
^{138}La	-86.910±0.670
^{139}La	-87.500±0.680
^{140}La	-84.590±0.640
^{141}La	-82.960±0.560
^{142}La	-79.850±0.540
^{143}La	-78.120±0.510
^{144}La	-74.690±0.410
^{145}La	-72.880±0.410
^{146}La	-69.020±0.430
^{147}La	-67.170±0.450

Isotope	Mass Excess
^{148}La	-63.570±0.540
^{149}La	-61.350±0.660
^{150}La	-57.630±0.630
^{151}La	-55.330±0.690
^{152}La	-51.520±0.790
^{153}La	-49.120±0.830
^{154}La	-45.010±0.910
^{155}La	-42.230±1.000
^{156}La	-37.910±1.020
^{157}La	-34.900±1.100
^{158}La	-30.240±1.170
^{159}La	-26.710±1.270
^{160}La	-21.730±1.440
^{161}La	-17.820±1.460
^{162}La	-12.670±1.580
^{163}La	-8.410±1.670
^{164}La	-2.790±1.670
^{165}La	1.690±1.730
^{166}La	7.800±1.850
^{167}La	12.860±1.930
^{168}La	19.150±2.000
^{169}La	24.630±2.040
^{170}La	31.630±2.030
^{171}La	37.150±2.140
^{172}La	44.490±2.220
^{173}La	50.440±2.320
^{174}La	58.040±2.300
^{175}La	64.450±2.370
^{176}La	72.220±2.530
^{177}La	78.730±2.640
^{178}La	86.760±2.690
^{179}La	93.500±2.870
^{180}La	101.750±2.980 †
^{181}La	108.660±3.080
^{182}La	116.800±3.270 †
^{183}La	124.540±3.290
^{184}La	134.870±3.490 †
^{185}La	143.720±3.630 †
^{186}La	153.850±3.720 †
^{187}La	162.770±3.850 †
^{188}La	173.330±4.040 †
^{189}La	182.510±4.080 †
^{190}La	192.860±4.210 †
^{191}La	202.100±4.360 †
^{192}La	212.660±4.510 †
^{193}La	222.120±4.560 †
^{107}Ce	44.540±1.880 †
^{108}Ce	32.020±1.740 †
^{109}Ce	24.550±1.740 †
^{110}Ce	14.770±1.530 †
^{111}Ce	7.760±1.370 †
^{112}Ce	-1.470±1.240 †
^{113}Ce	-7.800±1.230 †
^{114}Ce	-16.990±1.080 †
^{115}Ce	-23.060±1.040 †
^{116}Ce	-31.190±1.150 ‡
^{117}Ce	-34.790±1.070 ‡
^{118}Ce	-40.680±1.090
^{119}Ce	-44.070±0.950
^{120}Ce	-49.850±0.940
^{121}Ce	-52.860±0.880
^{122}Ce	-58.230±0.890
^{123}Ce	-60.500±0.920
^{124}Ce	-65.210±0.880
^{125}Ce	-66.860±0.880
^{126}Ce	-71.040±0.820
^{127}Ce	-72.140±0.760
^{128}Ce	-75.790±0.710
^{129}Ce	-76.470±0.670
^{130}Ce	-79.600±0.620
^{131}Ce	-79.900±0.690
^{132}Ce	-82.610±0.600
^{133}Ce	-82.550±0.530
^{134}Ce	-84.810±0.460
^{135}Ce	-84.680±0.520

Isotope	Mass Excess
^{136}Ce	-86.550±0.500
^{137}Ce	-86.020±0.560
^{138}Ce	-87.760±0.560
^{139}Ce	-87.070±0.570
^{140}Ce	-88.250±0.590
^{141}Ce	-85.470±0.510
^{142}Ce	-84.440±0.480
^{143}Ce	-81.420±0.480
^{144}Ce	-80.270±0.400
^{145}Ce	-76.940±0.380
^{146}Ce	-75.440±0.480
^{147}Ce	-71.900±0.430
^{148}Ce	-70.640±0.440
^{149}Ce	-66.920±0.520
^{150}Ce	-65.340±0.540
^{151}Ce	-61.760±0.610
^{152}Ce	-60.110±0.670
^{153}Ce	-56.360±0.700
^{154}Ce	-54.440±0.760
^{155}Ce	-50.350±0.900
^{156}Ce	-48.130±0.900
^{157}Ce	-43.900±0.970
^{158}Ce	-41.270±1.070
^{159}Ce	-36.660±1.110
^{160}Ce	-33.610±1.280
^{161}Ce	-28.720±1.340
^{162}Ce	-25.200±1.370
^{163}Ce	-20.200±1.520
^{164}Ce	-16.290±1.500
^{165}Ce	-10.780±1.620
^{166}Ce	-6.740±1.650
^{167}Ce	-0.650±1.780
^{168}Ce	3.780±1.820
^{169}Ce	10.220±1.910
^{170}Ce	15.290±1.900
^{171}Ce	22.080±1.930
^{172}Ce	27.220±2.080
^{173}Ce	34.430±2.080
^{174}Ce	40.080±2.130
^{175}Ce	47.730±2.220
^{176}Ce	53.470±2.330
^{177}Ce	61.240±2.370
^{178}Ce	67.360±2.510
^{179}Ce	75.350±2.600
^{180}Ce	81.670±2.740
^{181}Ce	89.560±2.860
^{182}Ce	96.150±3.020
^{183}Ce	104.280±3.080 †
^{184}Ce	111.790±3.250
^{185}Ce	121.710±3.370 †
^{186}Ce	130.110±3.500 †
^{187}Ce	140.090±3.620 †
^{188}Ce	148.640±3.750 †
^{189}Ce	159.230±3.870 †
^{190}Ce	167.650±3.950 †
^{191}Ce	177.930±4.080 †
^{192}Ce	186.630±4.280 †
^{193}Ce	197.130±4.300 †
^{194}Ce	206.170±4.410 †
^{114}Pr	4.490±1.240 †
^{115}Pr	-4.840±1.200 †
^{116}Pr	-11.520±1.090 †
^{117}Pr	-19.680±1.070 †
^{118}Pr	-25.730±1.190 †
^{119}Pr	-31.810±1.160 †
^{120}Pr	-35.890±1.090 †
^{121}Pr	-41.830±1.020 †
^{122}Pr	-45.400±0.990 †
^{123}Pr	-50.900±1.050 †
^{124}Pr	-53.740±1.040
^{125}Pr	-58.440±1.010
^{126}Pr	-60.730±0.980
^{127}Pr	-64.780±0.880
^{128}Pr	-66.560±0.850
^{129}Pr	-70.220±0.740

Isotope	Mass Excess
^{130}Pr	-71.480±0.710
^{131}Pr	-74.680±0.720
^{132}Pr	-75.570±0.720
^{133}Pr	-78.180±0.650
^{134}Pr	-78.490±0.590
^{135}Pr	-80.950±0.560
^{136}Pr	-81.150±0.570
^{137}Pr	-83.240±0.480
^{138}Pr	-83.310±0.570
^{139}Pr	-84.990±0.550
^{140}Pr	-84.890±0.560
^{141}Pr	-86.190±0.540
^{142}Pr	-84.020±0.430
^{143}Pr	-83.070±0.420
^{144}Pr	-80.640±0.450
^{145}Pr	-79.590±0.450
^{146}Pr	-76.570±0.480
^{147}Pr	-75.390±0.470
^{148}Pr	-72.440±0.440
^{149}Pr	-71.060±0.440
^{150}Pr	-67.970±0.470
^{151}Pr	-66.540±0.510
^{152}Pr	-63.610±0.640
^{153}Pr	-62.030±0.640
^{154}Pr	-58.750±0.670
^{155}Pr	-56.840±0.740
^{156}Pr	-53.320±0.830
^{157}Pr	-51.200±0.840
^{158}Pr	-47.340±0.920
^{159}Pr	-44.760±0.960
^{160}Pr	-40.620±1.090
^{161}Pr	-37.670±1.160
^{162}Pr	-33.170±1.230
^{163}Pr	-29.800±1.280
^{164}Pr	-25.150±1.370
^{165}Pr	-21.350±1.430
^{166}Pr	-16.280±1.520
^{167}Pr	-12.250±1.550
^{168}Pr	-6.800±1.640
^{169}Pr	-2.220±1.710
^{170}Pr	3.810±1.740
^{171}Pr	8.670±1.760
^{172}Pr	15.090±1.870
^{173}Pr	20.090±1.910
^{174}Pr	27.000±1.870
^{175}Pr	32.700±2.030
^{176}Pr	39.680±2.170
^{177}Pr	45.410±2.140
^{178}Pr	52.800±2.210
^{179}Pr	58.880±2.410
^{180}Pr	66.440±2.450
^{181}Pr	72.400±2.600
^{182}Pr	79.980±2.790
^{183}Pr	86.560±2.820
^{184}Pr	94.460±3.010
^{185}Pr	101.560±3.100
^{186}Pr	111.030±3.210 †
^{187}Pr	119.290±3.380 †
^{188}Pr	128.890±3.490 †
^{189}Pr	137.460±3.550 †
^{190}Pr	147.290±3.720 †
^{191}Pr	155.650±3.800 †
^{192}Pr	165.390±3.970 †
^{193}Pr	174.030±4.040 †
^{194}Pr	184.110±4.130 †
^{195}Pr	193.040±4.260 †
^{112}Nd	40.280±1.590 †
^{113}Nd	32.490±1.580 †
^{114}Nd	22.430±1.400 †
^{115}Nd	15.180±1.360 †
^{116}Nd	5.230±1.250 †
^{117}Nd	-1.480±1.230 †
^{118}Nd	-10.290±1.190 †
^{119}Nd	-16.530±1.170 †
^{120}Nd	-25.200±1.350 ‡

Isotope	Mass Excess
^{121}Nd	-29.440±1.240 ‡
^{122}Nd	-35.930±1.200
^{123}Nd	-39.640±1.230
^{124}Nd	-45.710±1.240
^{125}Nd	-48.540±1.210
^{126}Nd	-53.870±1.160
^{127}Nd	-56.040±1.080
^{128}Nd	-60.760±1.030
^{129}Nd	-62.550±0.930
^{130}Nd	-66.780±0.850
^{131}Nd	-68.120±0.840
^{132}Nd	-71.910±0.780
^{133}Nd	-72.700±0.800
^{134}Nd	-75.680±0.710
^{135}Nd	-76.200±0.730
^{136}Nd	-78.980±0.690
^{137}Nd	-79.410±0.580
^{138}Nd	-82.100±0.490
^{139}Nd	-82.110±0.490
^{140}Nd	-84.370±0.530
^{141}Nd	-84.400±0.450
^{142}Nd	-86.310±0.410
^{143}Nd	-84.220±0.380
^{144}Nd	-83.860±0.420
^{145}Nd	-81.520±0.450
^{146}Nd	-80.780±0.510
^{147}Nd	-78.080±0.480
^{148}Nd	-77.490±0.490
^{149}Nd	-74.420±0.460
^{150}Nd	-73.680±0.530
^{151}Nd	-70.730±0.470
^{152}Nd	-69.950±0.590
^{153}Nd	-67.090±0.650
^{154}Nd	-65.980±0.640
^{155}Nd	-62.720±0.660
^{156}Nd	-61.380±0.700
^{157}Nd	-57.950±0.750
^{158}Nd	-56.200±0.800
^{159}Nd	-52.390±0.840
^{160}Nd	-50.280±0.980
^{161}Nd	-46.250±0.990
^{162}Nd	-43.680±1.090
^{163}Nd	-39.330±1.170
^{164}Nd	-36.310±1.160
^{165}Nd	-31.770±1.320
^{166}Nd	-28.410±1.330
^{167}Nd	-23.360±1.450
^{168}Nd	-19.970±1.440
^{169}Nd	-14.360±1.530
^{170}Nd	-10.200±1.570
^{171}Nd	-4.370±1.620
^{172}Nd	0.110±1.730
^{173}Nd	6.390±1.690
^{174}Nd	11.100±1.710
^{175}Nd	18.060±1.800
^{176}Nd	23.090±2.010
^{177}Nd	30.060±1.970
^{178}Nd	35.420±2.000
^{179}Nd	42.760±2.120
^{180}Nd	48.410±2.260
^{181}Nd	55.620±2.320
^{182}Nd	61.260±2.540
^{183}Nd	68.830±2.600
^{184}Nd	75.180±2.770
^{185}Nd	82.660±2.890
^{186}Nd	89.320±2.970
^{187}Nd	98.640±3.120 †
^{188}Nd	106.520±3.280 ‡
^{189}Nd	116.150±3.310 †
^{190}Nd	123.960±3.430 ‡
^{191}Nd	133.730±3.600 †
^{192}Nd	141.540±3.730 ‡
^{193}Nd	151.220±3.770 †
^{194}Nd	159.450±3.920 †
^{195}Nd	169.410±4.010 †

Isotope	Mass Excess
^{196}Nd	177.760±4.170 †
^{197}Nd	187.850±4.250 †
^{198}Nd	196.590±4.380 †
^{199}Nd	206.990±4.450 †
^{200}Nd	216.070±4.540 †
^{201}Nd	226.960±4.670 †
^{202}Nd	236.260±4.710 †
^{118}Pm	10.780±1.350 †
^{119}Pm	1.790±1.340 †
^{120}Pm	-5.140±1.260 †
^{121}Pm	-13.980±1.250 †
^{122}Pm	-20.330±1.450 †
^{123}Pm	-26.960±1.430 †
^{124}Pm	-31.230±1.410 †
^{125}Pm	-37.290±1.400 †
^{126}Pm	-40.760±1.360 †
^{127}Pm	-45.970±1.250 †
^{128}Pm	-48.810±1.250
^{129}Pm	-53.540±1.120
^{130}Pm	-55.910±1.040
^{131}Pm	-60.220±0.980
^{132}Pm	-62.140±0.910
^{133}Pm	-65.830±0.880
^{134}Pm	-66.990±0.830
^{135}Pm	-70.180±0.770
^{136}Pm	-71.020±0.750
^{137}Pm	-74.030±0.600
^{138}Pm	-75.060±0.560
^{139}Pm	-77.680±0.520
^{140}Pm	-78.280±0.520
^{141}Pm	-80.670±0.490
^{142}Pm	-81.310±0.440
^{143}Pm	-83.300±0.420
^{144}Pm	-81.800±0.440
^{145}Pm	-81.530±0.400
^{146}Pm	-79.500±0.470
^{147}Pm	-79.080±0.420
^{148}Pm	-76.980±0.420
^{149}Pm	-76.260±0.410
^{150}Pm	-73.830±0.420
^{151}Pm	-73.230±0.460
^{152}Pm	-70.940±0.510
^{153}Pm	-70.220±0.540
^{154}Pm	-67.830±0.650
^{155}Pm	-66.740±0.620
^{156}Pm	-64.050±0.650
^{157}Pm	-62.800±0.640
^{158}Pm	-59.740±0.720
^{159}Pm	-58.040±0.710
^{160}Pm	-54.710±0.820
^{161}Pm	-52.700±0.860
^{162}Pm	-49.050±0.890
^{163}Pm	-46.630±1.020
^{164}Pm	-42.640±1.000
^{165}Pm	-39.730±1.080
^{166}Pm	-35.630±1.220
^{167}Pm	-32.280±1.260
^{168}Pm	-27.870±1.310
^{169}Pm	-24.320±1.310
^{170}Pm	-19.130±1.420
^{171}Pm	-15.170±1.460
^{172}Pm	-9.720±1.580
^{173}Pm	-5.370±1.540
^{174}Pm	0.610±1.490
^{175}Pm	5.360±1.640
^{176}Pm	11.650±1.760
^{177}Pm	16.680±1.800
^{178}Pm	23.270±1.840
^{179}Pm	28.580±1.900
^{180}Pm	35.500±1.980
^{181}Pm	40.790±2.140
^{182}Pm	47.680±2.250
^{183}Pm	53.320±2.330
^{184}Pm	60.660±2.520
^{185}Pm	66.590±2.610

Isotope	Mass Excess
^{186}Pm	73.630±2.710
^{187}Pm	80.140±2.820
^{188}Pm	89.080±2.970 †
^{189}Pm	96.990±3.050 ‡
^{190}Pm	105.860±3.140 †
^{191}Pm	113.610±3.240 ‡
^{192}Pm	122.830±3.460 †
^{193}Pm	130.580±3.460 ‡
^{194}Pm	139.850±3.580 †
^{195}Pm	147.960±3.740 †
^{196}Pm	157.340±3.840 †
^{197}Pm	165.700±3.950 †
^{198}Pm	175.400±4.040 †
^{199}Pm	183.990±4.130 †
^{200}Pm	194.020±4.240 †
^{201}Pm	203.200±4.330 †
^{202}Pm	213.340±4.370 †
^{203}Pm	222.800±4.520 †
^{115}Sm	58.220±1.710 †
^{116}Sm	47.410±1.580 †
^{117}Sm	39.520±1.570 †
^{118}Sm	28.890±1.520 †
^{119}Sm	21.340±1.510 †
^{120}Sm	11.650±1.440 †
^{121}Sm	4.550±1.420 †
^{122}Sm	-4.830±1.440 †
^{123}Sm	-11.320±1.430 †
^{124}Sm	-19.890±1.520 ‡
^{125}Sm	-24.160±1.490 ‡
^{126}Sm	-30.850±1.480 ‡
^{127}Sm	-34.200±1.400
^{128}Sm	-40.070±1.360
^{129}Sm	-42.920±1.270
^{130}Sm	-48.240±1.180
^{131}Sm	-50.670±1.130
^{132}Sm	-55.570±1.010
^{133}Sm	-57.400±0.950
^{134}Sm	-61.460±0.920
^{135}Sm	-62.830±0.920
^{136}Sm	-66.340±0.900
^{137}Sm	-67.400±0.770
^{138}Sm	-71.010±0.650
^{139}Sm	-71.980±0.560
^{140}Sm	-75.190±0.490
^{141}Sm	-75.920±0.470
^{142}Sm	-78.920±0.410
^{143}Sm	-79.630±0.490
^{144}Sm	-82.210±0.430
^{145}Sm	-80.800±0.410
^{146}Sm	-80.850±0.550
^{147}Sm	-79.140±0.490
^{148}Sm	-79.310±0.440
^{149}Sm	-77.080±0.410
^{150}Sm	-77.010±0.490
^{151}Sm	-74.720±0.470
^{152}Sm	-74.770±0.540
^{153}Sm	-72.540±0.500
^{154}Sm	-72.300±0.510
^{155}Sm	-69.930±0.520
^{156}Sm	-69.400±0.540
^{157}Sm	-66.800±0.550
^{158}Sm	-65.920±0.610
^{159}Sm	-62.920±0.650
^{160}Sm	-61.700±0.780
^{161}Sm	-58.460±0.750
^{162}Sm	-56.840±0.840
^{163}Sm	-53.340±0.890
^{164}Sm	-51.280±0.940
^{165}Sm	-47.390±1.000
^{166}Sm	-44.920±1.030
^{167}Sm	-40.830±1.180
^{168}Sm	-38.130±1.170
^{169}Sm	-33.560±1.250
^{170}Sm	-30.420±1.250
^{171}Sm	-25.440±1.330

Isotope	Mass Excess
^{172}Sm	-21.850±1.430
^{173}Sm	-16.540±1.410
^{174}Sm	-12.490±1.370
^{175}Sm	-6.460±1.440
^{176}Sm	-2.380±1.630
^{177}Sm	3.900±1.600
^{178}Sm	8.560±1.710
^{179}Sm	15.100±1.750
^{180}Sm	19.980±1.790
^{181}Sm	26.540±1.860
^{182}Sm	31.520±2.090
^{183}Sm	38.410±2.060
^{184}Sm	43.810±2.290
^{185}Sm	50.730±2.410
^{186}Sm	56.220±2.490
^{187}Sm	63.120±2.620
^{188}Sm	69.240±2.730
^{189}Sm	78.210±2.800 †
^{190}Sm	85.360±2.920
^{191}Sm	94.170±3.000 †
^{192}Sm	101.380±3.160
^{193}Sm	110.540±3.250 †
^{194}Sm	117.880±3.330 ‡
^{195}Sm	127.020±3.450 †
^{196}Sm	134.550±3.620 ‡
^{197}Sm	143.950±3.680 †
^{198}Sm	151.910±3.800 ‡
^{199}Sm	161.470±3.840 †
^{200}Sm	169.680±3.960 †
^{201}Sm	179.820±4.070 †
^{202}Sm	188.240±4.070 †
^{203}Sm	198.540±4.220 †
^{204}Sm	207.400±4.290 †
^{205}Sm	218.250±4.410 †
^{206}Sm	227.730±4.510 †
^{207}Sm	238.790±4.660 †
^{208}Sm	248.770±4.780 †
^{125}Eu	-8.330±1.490 †
^{126}Eu	-14.790±1.590 †
^{127}Eu	-21.360±1.520 †
^{128}Eu	-25.380±1.500 †
^{129}Eu	-31.270±1.380 †
^{130}Eu	-34.690±1.340 †
^{131}Eu	-40.080±1.250 †
^{132}Eu	-43.110±1.130 †
^{133}Eu	-47.900±1.050 †
^{134}Eu	-50.100±0.990 †
^{135}Eu	-54.370±0.970
^{136}Eu	-56.060±1.010
^{137}Eu	-59.790±0.830
^{138}Eu	-61.460±0.730
^{139}Eu	-65.000±0.630
^{140}Eu	-66.560±0.620
^{141}Eu	-69.900±0.470
^{142}Eu	-71.240±0.500
^{143}Eu	-74.310±0.410
^{144}Eu	-75.620±0.400
^{145}Eu	-78.290±0.400
^{146}Eu	-77.190±0.440
^{147}Eu	-77.560±0.450
^{148}Eu	-76.440±0.440
^{149}Eu	-76.490±0.460
^{150}Eu	-74.900±0.380
^{151}Eu	-74.970±0.410
^{152}Eu	-73.330±0.540
^{153}Eu	-73.450±0.510
^{154}Eu	-71.700±0.620
^{155}Eu	-71.470±0.500
^{156}Eu	-69.670±0.520
^{157}Eu	-69.230±0.460
^{158}Eu	-67.000±0.440
^{159}Eu	-66.180±0.550
^{160}Eu	-63.650±0.650
^{161}Eu	-62.530±0.640
^{162}Eu	-59.670±0.650

Isotope	Mass Excess
^{163}Eu	-58.200±0.720
^{164}Eu	-55.060±0.760
^{165}Eu	-53.100±0.810
^{166}Eu	-49.660±0.910
^{167}Eu	-47.190±0.910
^{168}Eu	-43.750±0.990
^{169}Eu	-40.890±1.040
^{170}Eu	-36.730±1.110
^{171}Eu	-33.810±1.070
^{172}Eu	-29.200±1.220
^{173}Eu	-25.750±1.210
^{174}Eu	-20.740±1.180
^{175}Eu	-16.640±1.240
^{176}Eu	-11.270±1.370
^{177}Eu	-7.200±1.420
^{178}Eu	-1.290±1.440
^{179}Eu	3.310±1.550
^{180}Eu	9.430±1.590
^{181}Eu	13.950±1.640
^{182}Eu	20.200±1.760
^{183}Eu	25.170±1.850
^{184}Eu	31.820±1.970
^{185}Eu	36.810±2.110
^{186}Eu	43.290±2.230
^{187}Eu	48.630±2.350
^{188}Eu	55.150±2.480
^{189}Eu	61.300±2.510
^{190}Eu	69.510±2.630 †
^{191}Eu	76.600±2.760
^{192}Eu	84.860±2.890 †
^{193}Eu	92.010±2.920
^{194}Eu	100.750±3.090 †
^{195}Eu	107.970±3.170
^{196}Eu	116.540±3.310 †
^{197}Eu	124.080±3.430
^{198}Eu	133.080±3.510 †
^{199}Eu	140.900±3.580 ‡
^{200}Eu	150.090±3.660 †
^{201}Eu	158.400±3.790 †
^{202}Eu	167.790±3.800 †
^{203}Eu	176.360±3.910 †
^{204}Eu	186.060±3.970 †
^{205}Eu	195.220±4.100 †
^{206}Eu	205.530±4.200 †
^{207}Eu	215.090±4.340 †
^{208}Eu	225.650±4.470 †
^{209}Eu	235.610±4.560 †
^{120}Gd	53.910±1.800 †
^{121}Gd	45.500±1.800 †
^{122}Gd	35.100±1.840 †
^{123}Gd	27.320±1.830 †
^{124}Gd	17.230±1.700 †
^{125}Gd	10.180±1.690 †
^{126}Gd	0.980±1.530 †
^{127}Gd	-5.350±1.520 †
^{128}Gd	-13.770±1.660 †
^{129}Gd	-17.800±1.580 †
^{130}Gd	-24.270±1.490 ‡
^{131}Gd	-27.770±1.460 ‡
^{132}Gd	-33.750±1.330
^{133}Gd	-36.670±1.250
^{134}Gd	-41.850±1.150
^{135}Gd	-44.240±1.110
^{136}Gd	-48.840±1.130
^{137}Gd	-50.750±1.020
^{138}Gd	-55.080±0.880
^{139}Gd	-56.690±0.810
^{140}Gd	-60.820±0.780
^{141}Gd	-62.510±0.680
^{142}Gd	-66.460±0.590
^{143}Gd	-67.870±0.610
^{144}Gd	-71.540±0.590
^{145}Gd	-72.940±0.430
^{146}Gd	-75.920±0.540
^{147}Gd	-75.150±0.510

Isotope	Mass Excess
^{148}Gd	-76.100±0.510
^{149}Gd	-74.860±0.540
^{150}Gd	-75.550±0.510
^{151}Gd	-74.100±0.500
^{152}Gd	-74.820±0.620
^{153}Gd	-73.250±0.590
^{154}Gd	-73.840±0.520
^{155}Gd	-72.100±0.550
^{156}Gd	-72.440±0.560
^{157}Gd	-70.730±0.540
^{158}Gd	-70.670±0.550
^{159}Gd	-68.490±0.530
^{160}Gd	-68.140±0.550
^{161}Gd	-65.710±0.550
^{162}Gd	-64.970±0.660
^{163}Gd	-62.270±0.660
^{164}Gd	-61.150±0.720
^{165}Gd	-58.110±0.770
^{166}Gd	-56.600±0.850
^{167}Gd	-53.170±0.870
^{168}Gd	-51.350±0.850
^{169}Gd	-47.750±0.950
^{170}Gd	-45.300±0.990
^{171}Gd	-41.350±1.000
^{172}Gd	-38.800±1.040
^{173}Gd	-34.330±1.050
^{174}Gd	-31.180±1.070
^{175}Gd	-26.110±1.130
^{176}Gd	-22.690±1.290
^{177}Gd	-17.330±1.240
^{178}Gd	-13.630±1.330
^{179}Gd	-7.770±1.350
^{180}Gd	-3.600±1.470
^{181}Gd	2.170±1.500
^{182}Gd	6.370±1.630
^{183}Gd	12.610±1.600
^{184}Gd	17.350±1.830
^{185}Gd	23.590±1.890
^{186}Gd	28.140±2.030
^{187}Gd	34.470±2.170
^{188}Gd	39.430±2.300
^{189}Gd	45.970±2.350
^{190}Gd	51.360±2.430
^{191}Gd	59.510±2.550 †
^{192}Gd	66.060±2.720
^{193}Gd	74.260±2.710 †
^{194}Gd	80.990±2.820
^{195}Gd	89.620±2.990 †
^{196}Gd	96.260±3.090
^{197}Gd	104.840±3.170 †
^{198}Gd	111.980±3.320
^{199}Gd	120.840±3.350 †
^{200}Gd	128.290±3.450 ‡
^{201}Gd	137.580±3.530 †
^{202}Gd	145.140±3.560 ‡
^{203}Gd	154.670±3.690 †
^{204}Gd	162.650±3.710 ‡
^{205}Gd	172.650±3.840 †
^{206}Gd	181.270±3.940 †
^{207}Gd	191.660±4.070 †
^{208}Gd	200.720±4.190 †
^{209}Gd	211.260±4.290 †
^{210}Gd	220.900±4.410 †
^{211}Gd	231.790±4.490 †
^{212}Gd	241.520±4.590 †
^{213}Gd	252.730±4.660 †
^{214}Gd	263.030±4.760 †
^{130}Tb	-7.860±1.680 †
^{131}Tb	-14.400±1.590 †
^{132}Tb	-18.490±1.500 †
^{133}Tb	-24.360±1.410 †
^{134}Tb	-27.660±1.320 †
^{135}Tb	-33.030±1.250 †
^{136}Tb	-35.760±1.240 †
^{137}Tb	-40.580±1.090 †

Isotope	Mass Excess
^{138}Tb	-43.090±1.000 †
^{139}Tb	-47.360±0.860 †
^{140}Tb	-49.560±0.860
^{141}Tb	-53.820±0.740
^{142}Tb	-56.110±0.740
^{143}Tb	-60.140±0.640
^{144}Tb	-62.140±0.620
^{145}Tb	-65.900±0.540
^{146}Tb	-67.610±0.570
^{147}Tb	-70.920±0.500
^{148}Tb	-70.730±0.460
^{149}Tb	-71.560±0.520
^{150}Tb	-70.960±0.480
^{151}Tb	-71.790±0.500
^{152}Tb	-71.000±0.540
^{153}Tb	-71.780±0.590
^{154}Tb	-70.680±0.580
^{155}Tb	-71.290±0.530
^{156}Tb	-70.120±0.610
^{157}Tb	-70.560±0.580
^{158}Tb	-69.210±0.570
^{159}Tb	-69.200±0.580
^{160}Tb	-67.500±0.540
^{161}Tb	-67.250±0.550
^{162}Tb	-65.210±0.570
^{163}Tb	-64.620±0.500
^{164}Tb	-62.280±0.620
^{165}Tb	-61.260±0.650
^{166}Tb	-58.660±0.680
^{167}Tb	-57.160±0.720
^{168}Tb	-54.370±0.720
^{169}Tb	-52.400±0.730
^{170}Tb	-49.210±0.830
^{171}Tb	-46.970±0.810
^{172}Tb	-43.390±0.920
^{173}Tb	-40.980±0.890
^{174}Tb	-36.810±0.890
^{175}Tb	-33.610±0.970
^{176}Tb	-29.210±1.090
^{177}Tb	-25.790±1.080
^{178}Tb	-20.810±1.100
^{179}Tb	-17.160±1.170
^{180}Tb	-11.730±1.210
^{181}Tb	-7.910±1.320
^{182}Tb	-2.460±1.420
^{183}Tb	1.740±1.390
^{184}Tb	7.750±1.540
^{185}Tb	12.070±1.680
^{186}Tb	17.860±1.720
^{187}Tb	22.260±1.880
^{188}Tb	28.210±2.050
^{189}Tb	33.200±2.100
^{190}Tb	38.990±2.180
^{191}Tb	44.320±2.260
^{192}Tb	51.930±2.420
^{193}Tb	58.400±2.470
^{194}Tb	66.190±2.540
^{195}Tb	72.810±2.670
^{196}Tb	80.850±2.850
^{197}Tb	87.510±2.900
^{198}Tb	95.690±3.000 †
^{199}Tb	102.690±3.100
^{200}Tb	111.180±3.160 †
^{201}Tb	118.730±3.260
^{202}Tb	127.260±3.260 †
^{203}Tb	134.980±3.410 ‡
^{204}Tb	143.910±3.450 †
^{205}Tb	152.200±3.540 †
^{206}Tb	161.650±3.630 †
^{207}Tb	170.350±3.770 †
^{208}Tb	180.240±3.890 †
^{209}Tb	189.280±3.980 †
^{210}Tb	199.510±4.120 †
^{211}Tb	208.970±4.180 †
^{212}Tb	219.530±4.300 †

Isotope	Mass Excess
^{213}Tb	229.290±4.370 †
^{126}Dy	41.650±1.930 †
^{127}Dy	34.080±1.930 †
^{128}Dy	24.340±1.790 †
^{129}Dy	17.320±1.790 †
^{130}Dy	8.310±1.600 †
^{131}Dy	1.990±1.590 †
^{132}Dy	-6.400±1.650 †
^{133}Dy	-10.390±1.610 †
^{134}Dy	-16.640±1.500 †
^{135}Dy	-20.140±1.420 †
^{136}Dy	-25.840±1.350 ‡
^{137}Dy	-28.790±1.230 ‡
^{138}Dy	-34.200±1.120 ‡
^{139}Dy	-36.660±1.040
^{140}Dy	-41.510±0.980
^{141}Dy	-43.840±0.830
^{142}Dy	-48.710±0.790
^{143}Dy	-51.080±0.780
^{144}Dy	-55.700±0.680
^{145}Dy	-57.790±0.680
^{146}Dy	-61.860±0.690
^{147}Dy	-63.900±0.590
^{148}Dy	-67.790±0.540
^{149}Dy	-67.480±0.560
^{150}Dy	-68.960±0.520
^{151}Dy	-68.500±0.560
^{152}Dy	-69.980±0.540
^{153}Dy	-69.250±0.570
^{154}Dy	-70.510±0.630
^{155}Dy	-69.430±0.630
^{156}Dy	-70.600±0.580
^{157}Dy	-69.530±0.620
^{158}Dy	-70.330±0.650
^{159}Dy	-69.040±0.640
^{160}Dy	-69.500±0.630
^{161}Dy	-67.900±0.570
^{162}Dy	-68.030±0.650
^{163}Dy	-66.140±0.530
^{164}Dy	-65.910±0.600
^{165}Dy	-63.670±0.550
^{166}Dy	-63.100±0.670
^{167}Dy	-60.510±0.700
^{168}Dy	-59.650±0.700
^{169}Dy	-56.700±0.710
^{170}Dy	-55.140±0.730
^{171}Dy	-52.160±0.810
^{172}Dy	-50.290±0.810
^{173}Dy	-46.860±0.840
^{174}Dy	-44.750±0.800
^{175}Dy	-40.520±0.890
^{176}Dy	-37.990±1.010
^{177}Dy	-33.610±0.990
^{178}Dy	-30.560±1.010
^{179}Dy	-25.630±1.030
^{180}Dy	-22.400±1.150
^{181}Dy	-17.330±1.140
^{182}Dy	-13.830±1.280
^{183}Dy	-8.380±1.260
^{184}Dy	-4.410±1.340
^{185}Dy	1.180±1.420
^{186}Dy	5.060±1.570
^{187}Dy	10.700±1.620
^{188}Dy	14.720±1.800
^{189}Dy	20.700±1.860
^{190}Dy	24.930±1.960
^{191}Dy	30.650±2.040
^{192}Dy	35.440±2.170
^{193}Dy	42.990±2.210
^{194}Dy	49.050±2.340
^{195}Dy	56.720±2.420
^{196}Dy	62.750±2.530
^{197}Dy	70.820±2.670
^{198}Dy	77.070±2.740
^{199}Dy	85.110±2.800

Isotope	Mass Excess
^{200}Dy	91.740±2.930
^{201}Dy	100.330±2.980 †
^{202}Dy	107.120±2.990
^{203}Dy	115.810±3.100 †
^{204}Dy	122.930±3.160
^{205}Dy	132.170±3.250 †
^{206}Dy	139.900±3.310 ‡
^{207}Dy	149.440±3.440 †
^{208}Dy	157.640±3.570 †
^{209}Dy	167.510±3.660 †
^{210}Dy	176.240±3.770 †
^{211}Dy	186.290±3.860 †
^{212}Dy	195.420±3.950 †
^{213}Dy	206.010±4.040 †
^{214}Dy	215.440±4.130 †
^{215}Dy	226.150±4.240 †
^{216}Dy	235.740±4.310 †
^{134}Ho	0.150±1.730 †
^{135}Ho	-6.300±1.630 †
^{136}Ho	-10.130±1.580 †
^{137}Ho	-16.050±1.390 †
^{138}Ho	-19.600±1.290 †
^{139}Ho	-24.950±1.170 †
^{140}Ho	-27.990±1.150 †
^{141}Ho	-32.980±1.030 †
^{142}Ho	-35.910±0.970 †
^{143}Ho	-40.860±0.920 †
^{144}Ho	-43.820±0.840
^{145}Ho	-48.530±0.730
^{146}Ho	-50.940±0.750
^{147}Ho	-55.330±0.630
^{148}Ho	-57.960±0.550
^{149}Ho	-61.730±0.550
^{150}Ho	-62.060±0.480
^{151}Ho	-63.670±0.550
^{152}Ho	-63.870±0.560
^{153}Ho	-65.410±0.560
^{154}Ho	-65.160±0.550
^{155}Ho	-66.430±0.560
^{156}Ho	-65.920±0.580
^{157}Ho	-67.180±0.520
^{158}Ho	-66.480±0.600
^{159}Ho	-67.330±0.610
^{160}Ho	-66.520±0.570
^{161}Ho	-67.090±0.600
^{162}Ho	-65.870±0.650
^{163}Ho	-66.150±0.530
^{164}Ho	-64.620±0.670
^{165}Ho	-64.490±0.560
^{166}Ho	-62.690±0.560
^{167}Ho	-62.130±0.580
^{168}Ho	-60.190±0.570
^{169}Ho	-59.170±0.610
^{170}Ho	-56.640±0.620
^{171}Ho	-55.280±0.580
^{172}Ho	-52.670±0.760
^{173}Ho	-50.950±0.660
^{174}Ho	-47.810±0.710
^{175}Ho	-45.640±0.720
^{176}Ho	-42.090±0.850
^{177}Ho	-39.570±0.870
^{178}Ho	-35.560±0.910
^{179}Ho	-32.560±0.930
^{180}Ho	-28.060±0.970
^{181}Ho	-25.180±1.070
^{182}Ho	-20.430±1.130
^{183}Ho	-16.930±1.120
^{184}Ho	-11.720±1.230
^{185}Ho	-8.170±1.260
^{186}Ho	-3.020±1.310
^{187}Ho	0.710±1.460
^{188}Ho	5.980±1.550
^{189}Ho	10.020±1.610
^{190}Ho	15.250±1.750
^{191}Ho	19.410±1.840

Isotope	Mass Excess
^{192}Ho	24.590±1.970
^{193}Ho	29.320±1.960
^{194}Ho	36.450±2.090
^{195}Ho	42.390±2.210
^{196}Ho	49.480±2.300
^{197}Ho	55.530±2.380
^{198}Ho	63.200±2.540
^{199}Ho	69.310±2.560
^{200}Ho	76.980±2.650
^{201}Ho	83.710±2.770
^{202}Ho	91.540±2.740
^{203}Ho	98.490±2.870
^{204}Ho	106.580±2.890 †
^{205}Ho	114.000±3.010
^{206}Ho	122.690±3.090 †
^{207}Ho	130.510±3.170 ‡
^{208}Ho	139.550±3.290 †
^{209}Ho	147.730±3.380 †
^{210}Ho	157.290±3.500 †
^{211}Ho	165.840±3.570 †
^{212}Ho	175.550±3.680 †
^{213}Ho	184.710±3.740 †
^{214}Ho	194.980±3.850 †
^{215}Ho	204.230±3.970 †
^{216}Ho	214.420±4.010 †
^{217}Ho	223.960±4.150 †
^{131}Er	41.860±2.000 †
^{132}Er	32.190±1.820 †
^{133}Er	25.370±1.810 †
^{134}Er	16.710±1.650 †
^{135}Er	10.470±1.640 †
^{136}Er	2.460±1.770 †
^{137}Er	-1.590±1.580 †
^{138}Er	-8.110±1.410 †
^{139}Er	-11.600±1.310 †
^{140}Er	-17.540±1.270 †
^{141}Er	-20.710±1.180 ‡
^{142}Er	-26.310±1.110 ‡
^{143}Er	-29.320±1.070
^{144}Er	-34.850±0.940
^{145}Er	-37.900±0.860
^{146}Er	-42.930±0.860
^{147}Er	-45.660±0.780
^{148}Er	-50.640±0.710
^{149}Er	-53.140±0.660
^{150}Er	-57.550±0.540
^{151}Er	-58.030±0.530
^{152}Er	-60.290±0.560
^{153}Er	-60.550±0.550
^{154}Er	-62.570±0.570
^{155}Er	-62.330±0.540
^{156}Er	-64.170±0.510
^{157}Er	-63.750±0.540
^{158}Er	-65.390±0.500
^{159}Er	-64.740±0.540
^{160}Er	-66.070±0.500
^{161}Er	-65.360±0.490
^{162}Er	-66.300±0.560
^{163}Er	-65.240±0.480
^{164}Er	-65.880±0.570
^{165}Er	-64.440±0.610
^{166}Er	-64.760±0.550
^{167}Er	-62.970±0.650
^{168}Er	-63.060±0.550
^{169}Er	-60.950±0.600
^{170}Er	-60.350±0.630
^{171}Er	-58.020±0.560
^{172}Er	-57.040±0.660
^{173}Er	-54.580±0.650
^{174}Er	-53.150±0.630
^{175}Er	-49.960±0.690
^{176}Er	-48.460±0.790
^{177}Er	-44.920±0.740
^{178}Er	-42.770±0.810
^{179}Er	-38.810±0.800

Isotope	Mass Excess
^{180}Er	-36.240±0.840
^{181}Er	-32.090±0.900
^{182}Er	-29.540±1.040
^{183}Er	-24.780±0.980
^{184}Er	-21.520±1.110
^{185}Er	-16.730±1.170
^{186}Er	-13.610±1.170
^{187}Er	-8.610±1.240
^{188}Er	-5.260±1.400
^{189}Er	0.030±1.390
^{190}Er	3.320±1.520
^{191}Er	8.480±1.640
^{192}Er	12.100±1.780
^{193}Er	17.220±1.770
^{194}Er	21.530±1.860
^{195}Er	28.540±1.970
^{196}Er	33.910±2.110
^{197}Er	41.010±2.150
^{198}Er	46.660±2.250
^{199}Er	54.180±2.360
^{200}Er	59.930±2.410
^{201}Er	67.700±2.490
^{202}Er	73.670±2.530
^{203}Er	81.660±2.610
^{204}Er	88.010±2.640
^{205}Er	96.400±2.710 †
^{206}Er	103.280±2.830
^{207}Er	112.050±2.930 †
^{208}Er	119.370±3.000
^{209}Er	128.380±3.090 †
^{210}Er	136.250±3.210 ‡
^{211}Er	145.630±3.280 †
^{212}Er	153.850±3.380 †
^{213}Er	163.600±3.460 †
^{214}Er	172.430±3.540 †
^{215}Er	182.510±3.680 †
^{216}Er	191.250±3.730 †
^{217}Er	201.380±3.850 †
^{218}Er	210.310±3.970 †
^{219}Er	220.750±4.110 †
^{220}Er	229.790±4.210 †
^{140}Tm	-1.400±1.480 †
^{141}Tm	-7.470±1.340 †
^{142}Tm	-11.240±1.330 †
^{143}Tm	-16.920±1.250 †
^{144}Tm	-20.520±1.170 †
^{145}Tm	-26.150±1.040 †
^{146}Tm	-29.510±1.070 †
^{147}Tm	-34.860±0.910 †
^{148}Tm	-38.170±0.830 †
^{149}Tm	-43.040±0.830 †
^{150}Tm	-46.180±0.720
^{151}Tm	-50.730±0.670
^{152}Tm	-51.860±0.620
^{153}Tm	-54.190±0.540
^{154}Tm	-54.920±0.540
^{155}Tm	-56.960±0.540
^{156}Tm	-57.280±0.540
^{157}Tm	-59.220±0.560
^{158}Tm	-59.170±0.500
^{159}Tm	-60.860±0.460
^{160}Tm	-60.680±0.460
^{161}Tm	-62.110±0.460
^{162}Tm	-61.780±0.540
^{163}Tm	-62.880±0.540
^{164}Tm	-62.170±0.610
^{165}Tm	-62.910±0.520
^{166}Tm	-61.920±0.610
^{167}Tm	-62.250±0.570
^{168}Tm	-61.110±0.580
^{169}Tm	-61.030±0.620
^{170}Tm	-59.350±0.640
^{171}Tm	-58.950±0.550
^{172}Tm	-57.000±0.520
^{173}Tm	-56.150±0.450

Isotope	Mass Excess
^{174}Tm	-53.990±0.430
^{175}Tm	-52.510±0.480
^{176}Tm	-49.990±0.720
^{177}Tm	-48.500±0.620
^{178}Tm	-45.330±0.690
^{179}Tm	-43.230±0.680
^{180}Tm	-39.700±0.720
^{181}Tm	-37.480±0.750
^{182}Tm	-33.650±0.800
^{183}Tm	-31.100±0.880
^{184}Tm	-26.580±0.930
^{185}Tm	-23.730±1.000
^{186}Tm	-19.380±1.020
^{187}Tm	-16.420±1.080
^{188}Tm	-11.800±1.170
^{189}Tm	-8.420±1.270
^{190}Tm	-3.890±1.290
^{191}Tm	-0.660±1.400
^{192}Tm	3.960±1.580
^{193}Tm	7.520±1.580
^{194}Tm	12.220±1.670
^{195}Tm	16.410±1.750
^{196}Tm	22.840±1.870
^{197}Tm	28.230±1.980
^{198}Tm	34.930±2.030
^{199}Tm	40.440±2.080
^{200}Tm	47.590±2.210
^{201}Tm	53.440±2.270
^{202}Tm	60.450±2.260
^{203}Tm	66.580±2.400
^{204}Tm	73.970±2.390
^{205}Tm	80.620±2.490
^{206}Tm	88.470±2.540
^{207}Tm	95.430±2.680
^{208}Tm	103.700±2.770 †
^{209}Tm	111.000±2.810
^{210}Tm	119.700±2.930 †
^{211}Tm	127.390±3.000 ‡
^{212}Tm	136.440±3.100 †
^{213}Tm	144.680±3.170 †
^{214}Tm	154.110±3.270 †
^{215}Tm	162.760±3.380 †
^{216}Tm	172.330±3.440 †
^{217}Tm	181.010±3.560 †
^{218}Tm	190.530±3.670 †
^{219}Tm	199.500±3.790 †
^{220}Tm	209.340±3.900 †
^{221}Tm	218.160±4.100 †
^{136}Yb	41.640±1.840 †
^{137}Yb	34.850±1.770 †
^{138}Yb	26.020±1.590 †
^{139}Yb	19.840±1.510 †
^{140}Yb	11.640±1.660 †
^{141}Yb	7.430±1.530 †
^{142}Yb	0.760±1.490 †
^{143}Yb	-3.100±1.460 †
^{144}Yb	-9.360±1.360 †
^{145}Yb	-13.050±1.280 †
^{146}Yb	-18.990±1.220 ‡
^{147}Yb	-22.680±1.100 ‡
^{148}Yb	-28.620±0.960
^{149}Yb	-31.810±0.980
^{150}Yb	-37.310±0.870
^{151}Yb	-40.590±0.790
^{152}Yb	-45.800±0.720
^{153}Yb	-46.990±0.630
^{154}Yb	-49.800±0.550
^{155}Yb	-50.550±0.530
^{156}Yb	-53.150±0.520
^{157}Yb	-53.570±0.470
^{158}Yb	-55.880±0.480
^{159}Yb	-55.880±0.470
^{160}Yb	-58.040±0.470
^{161}Yb	-57.970±0.500
^{162}Yb	-59.780±0.570

Isotope	Mass Excess
^{163}Yb	-59.600±0.440
^{164}Yb	-61.060±0.560
^{165}Yb	-60.450±0.550
^{166}Yb	-61.640±0.570
^{167}Yb	-60.660±0.570
^{168}Yb	-61.630±0.520
^{169}Yb	-60.330±0.600
^{170}Yb	-60.670±0.650
^{171}Yb	-59.180±0.590
^{172}Yb	-59.170±0.640
^{173}Yb	-57.350±0.450
^{174}Yb	-56.810±0.500
^{175}Yb	-54.590±0.540
^{176}Yb	-53.780±0.580
^{177}Yb	-51.270±0.570
^{178}Yb	-50.150±0.600
^{179}Yb	-47.030±0.630
^{180}Yb	-45.360±0.660
^{181}Yb	-42.180±0.700
^{182}Yb	-40.280±0.750
^{183}Yb	-36.450±0.660
^{184}Yb	-34.140±0.870
^{185}Yb	-30.040±0.810
^{186}Yb	-27.630±0.860
^{187}Yb	-23.430±0.950
^{188}Yb	-20.840±0.990
^{189}Yb	-16.200±1.020
^{190}Yb	-13.570±1.130
^{191}Yb	-9.110±1.150
^{192}Yb	-6.420±1.320
^{193}Yb	-1.870±1.350
^{194}Yb	1.280±1.470
^{195}Yb	5.860±1.530
^{196}Yb	9.470±1.620
^{197}Yb	15.920±1.690
^{198}Yb	20.910±1.820
^{199}Yb	27.470±1.820
^{200}Yb	32.600±1.910
^{201}Yb	39.860±2.040
^{202}Yb	44.950±2.010
^{203}Yb	52.120±2.110
^{204}Yb	57.650±2.160
^{205}Yb	65.340±2.210
^{206}Yb	71.450±2.280
^{207}Yb	79.380±2.360
^{208}Yb	85.830±2.480
^{209}Yb	94.090±2.530 †
^{210}Yb	101.070±2.600
^{211}Yb	109.600±2.670 †
^{212}Yb	116.950±2.770
^{213}Yb	126.030±2.840 †
^{214}Yb	133.960±2.920 ‡
^{215}Yb	143.190±3.060 †
^{216}Yb	151.340±3.090 †
^{217}Yb	160.840±3.230 †
^{218}Yb	168.910±3.340 ‡
^{219}Yb	178.480±3.440 †
^{220}Yb	186.840±3.540 †
^{221}Yb	196.460±3.750 †
^{222}Yb	204.990±3.840 †
^{223}Yb	215.160±3.900 †
^{224}Yb	223.820±3.960 †
^{225}Yb	234.250±4.100 †
^{226}Yb	243.350±4.180 †
^{227}Yb	253.630±4.340 †
^{144}Lu	7.150±1.590 †
^{145}Lu	0.790±1.470 †
^{146}Lu	-3.210±1.470 †
^{147}Lu	-9.480±1.280 †
^{148}Lu	-13.750±1.170 †
^{149}Lu	-19.560±1.110 †
^{150}Lu	-23.400±1.020 †
^{151}Lu	-29.040±0.930 †
^{152}Lu	-32.970±0.850 †
^{153}Lu	-38.240±0.810 †

Isotope	Mass Excess
^{154}Lu	-39.910±0.670
^{155}Lu	-42.730±0.630
^{156}Lu	-44.050±0.550
^{157}Lu	-46.750±0.500
^{158}Lu	-47.530±0.500
^{159}Lu	-49.890±0.480
^{160}Lu	-50.370±0.450
^{161}Lu	-52.640±0.470
^{162}Lu	-52.940±0.550
^{163}Lu	-54.910±0.490
^{164}Lu	-55.090±0.530
^{165}Lu	-56.640±0.540
^{166}Lu	-56.480±0.550
^{167}Lu	-57.680±0.490
^{168}Lu	-57.340±0.460
^{169}Lu	-58.150±0.560
^{170}Lu	-57.270±0.610
^{171}Lu	-57.810±0.530
^{172}Lu	-56.710±0.550
^{173}Lu	-56.830±0.520
^{174}Lu	-55.310±0.460
^{175}Lu	-54.710±0.540
^{176}Lu	-53.170±0.440
^{177}Lu	-52.360±0.460
^{178}Lu	-50.230±0.450
^{179}Lu	-49.170±0.410
^{180}Lu	-46.470±0.510
^{181}Lu	-45.150±0.560
^{182}Lu	-42.290±0.640
^{183}Lu	-40.400±0.520
^{184}Lu	-36.800±0.640
^{185}Lu	-34.900±0.770
^{186}Lu	-31.240±0.730
^{187}Lu	-28.980±0.800
^{188}Lu	-25.160±0.910
^{189}Lu	-22.550±0.890
^{190}Lu	-18.660±0.940
^{191}Lu	-16.100±1.040
^{192}Lu	-12.180±1.090
^{193}Lu	-9.560±1.140
^{194}Lu	-5.420±1.260
^{195}Lu	-2.390±1.370
^{196}Lu	1.610±1.430
^{197}Lu	5.240±1.480
^{198}Lu	11.290±1.580
^{199}Lu	16.130±1.640
^{200}Lu	22.320±1.680
^{201}Lu	27.560±1.760
^{202}Lu	34.060±1.810
^{203}Lu	39.300±1.880
^{204}Lu	45.880±1.880
^{205}Lu	51.710±1.990
^{206}Lu	58.850±2.010
^{207}Lu	65.050±2.120
^{208}Lu	72.470±2.180
^{209}Lu	78.910±2.290
^{210}Lu	86.850±2.380
^{211}Lu	93.660±2.410
^{212}Lu	101.850±2.500 †
^{213}Lu	109.240±2.570
^{214}Lu	117.990±2.660 †
^{215}Lu	125.730±2.770 ‡
^{216}Lu	134.460±2.830 †
^{217}Lu	142.540±2.950 †
^{218}Lu	151.440±3.080 †
^{219}Lu	159.540±3.190 †
^{220}Lu	168.510±3.270 †
^{221}Lu	176.660±3.470 †
^{222}Lu	185.990±3.570 †
^{223}Lu	194.380±3.610 †
^{224}Lu	204.020±3.680 †
^{225}Lu	212.580±3.800 †
^{140}Hf	51.500±1.720 †
^{141}Hf	44.610±1.710 †
^{142}Hf	35.670±1.660 †

Isotope	Mass Excess
^{143}Hf	29.150±1.650 †
^{144}Hf	20.690±1.760 †
^{145}Hf	16.150±1.700 †
^{146}Hf	9.490±1.660 †
^{147}Hf	5.160±1.550 †
^{148}Hf	-1.690±1.390 †
^{149}Hf	-5.850±1.350 †
^{150}Hf	-12.300±1.180 ‡
^{151}Hf	-16.270±1.110 ‡
^{152}Hf	-22.570±1.060 ‡
^{153}Hf	-26.570±0.980
^{154}Hf	-32.310±0.870
^{155}Hf	-34.000±0.800
^{156}Hf	-37.380±0.670
^{157}Hf	-38.790±0.670
^{158}Hf	-41.860±0.590
^{159}Hf	-42.700±0.560
^{160}Hf	-45.540±0.570
^{161}Hf	-46.110±0.560
^{162}Hf	-48.760±0.570
^{163}Hf	-49.220±0.550
^{164}Hf	-51.540±0.590
^{165}Hf	-51.820±0.560
^{166}Hf	-53.830±0.600
^{167}Hf	-53.670±0.680
^{168}Hf	-55.510±0.560
^{169}Hf	-55.020±0.610
^{170}Hf	-56.240±0.600
^{171}Hf	-55.560±0.560
^{172}Hf	-56.490±0.570
^{173}Hf	-55.520±0.640
^{174}Hf	-55.940±0.550
^{175}Hf	-54.370±0.530
^{176}Hf	-54.440±0.510
^{177}Hf	-52.900±0.540
^{178}Hf	-52.470±0.560
^{179}Hf	-50.390±0.510
^{180}Hf	-49.750±0.500
^{181}Hf	-47.410±0.540
^{182}Hf	-46.410±0.610
^{183}Hf	-43.550±0.540
^{184}Hf	-41.900±0.550
^{185}Hf	-38.720±0.570
^{186}Hf	-37.260±0.690
^{187}Hf	-33.750±0.740
^{188}Hf	-31.870±0.770
^{189}Hf	-28.020±0.810
^{190}Hf	-26.170±0.810
^{191}Hf	-22.340±0.820
^{192}Hf	-20.320±0.970
^{193}Hf	-16.460±0.920
^{194}Hf	-14.250±1.040
^{195}Hf	-10.230±1.180
^{196}Hf	-7.780±1.270
^{197}Hf	-3.770±1.280
^{198}Hf	-0.540±1.360
^{199}Hf	5.370±1.380
^{200}Hf	9.840±1.490
^{201}Hf	16.130±1.500
^{202}Hf	20.610±1.500
^{203}Hf	27.270±1.660
^{204}Hf	31.910±1.650
^{205}Hf	38.790±1.700
^{206}Hf	44.080±1.790
^{207}Hf	51.300±1.860
^{208}Hf	56.990±1.940
^{209}Hf	64.400±1.980
^{210}Hf	70.530±2.130
^{211}Hf	78.290±2.170
^{212}Hf	84.760±2.230
^{213}Hf	92.980±2.280 †
^{214}Hf	100.050±2.370
^{215}Hf	108.620±2.500 †
^{216}Hf	115.850±2.550
^{217}Hf	124.510±2.680 †

Isotope	Mass Excess
^{218}Hf	131.990±2.780
^{219}Hf	140.920±2.910 †
^{220}Hf	148.430±3.000 ‡
^{221}Hf	157.180±3.180 †
^{222}Hf	165.040±3.270 ‡
^{223}Hf	174.230±3.320 †
^{224}Hf	182.090±3.370 ‡
^{225}Hf	191.620±3.500 †
^{226}Hf	199.660±3.540 ‡
^{227}Hf	209.610±3.660 †
^{228}Hf	218.160±3.820 †
^{229}Hf	227.880±3.960 †
^{148}Ta	15.310±1.610 †
^{149}Ta	8.590±1.500 †
^{150}Ta	3.790±1.340 †
^{151}Ta	-2.810±1.190 †
^{152}Ta	-7.430±1.140 †
^{153}Ta	-13.790±1.080 †
^{154}Ta	-18.270±0.980 †
^{155}Ta	-24.030±0.920 †
^{156}Ta	-26.270±0.770 †
^{157}Ta	-29.760±0.700 †
^{158}Ta	-31.540±0.630
^{159}Ta	-34.660±0.560
^{160}Ta	-35.980±0.560
^{161}Ta	-38.910±0.510
^{162}Ta	-39.870±0.500
^{163}Ta	-42.670±0.470
^{164}Ta	-43.480±0.580
^{165}Ta	-45.910±0.580
^{166}Ta	-46.630±0.590
^{167}Ta	-48.650±0.560
^{168}Ta	-49.140±0.560
^{169}Ta	-50.820±0.580
^{170}Ta	-50.740±0.660
^{171}Ta	-52.170±0.600
^{172}Ta	-51.870±0.600
^{173}Ta	-52.920±0.670
^{174}Ta	-52.260±0.670
^{175}Ta	-52.620±0.550
^{176}Ta	-51.720±0.510
^{177}Ta	-51.810±0.440
^{178}Ta	-50.640±0.500
^{179}Ta	-50.260±0.530
^{180}Ta	-48.600±0.540
^{181}Ta	-48.320±0.490
^{182}Ta	-46.300±0.450
^{183}Ta	-45.310±0.370
^{184}Ta	-42.680±0.470
^{185}Ta	-41.440±0.420
^{186}Ta	-38.700±0.390
^{187}Ta	-37.390±0.690
^{188}Ta	-34.260±0.670
^{189}Ta	-32.360±0.630
^{190}Ta	-29.260±0.680
^{191}Ta	-27.470±0.720
^{192}Ta	-24.190±0.810
^{193}Ta	-22.240±0.840
^{194}Ta	-18.790±0.870
^{195}Ta	-16.700±1.000
^{196}Ta	-13.260±1.130
^{197}Ta	-10.800±1.170
^{198}Ta	-7.180±1.200
^{199}Ta	-4.090±1.240
^{200}Ta	1.450±1.300
^{201}Ta	6.020±1.410
^{202}Ta	11.560±1.330
^{203}Ta	16.190±1.430
^{204}Ta	22.250±1.510
^{205}Ta	27.200±1.550
^{206}Ta	33.520±1.560
^{207}Ta	38.900±1.690
^{208}Ta	45.620±1.720
^{209}Ta	51.290±1.790
^{210}Ta	58.390±1.860

Isotope	Mass Excess
^{211}Ta	64.330±1.950
^{212}Ta	71.760±2.020
^{213}Ta	78.270±2.040
^{214}Ta	86.170±2.120
^{215}Ta	93.040±2.240
^{216}Ta	101.110±2.290
^{217}Ta	108.270±2.400
^{218}Ta	116.330±2.530
^{219}Ta	123.840±2.630
^{220}Ta	132.180±2.730 †
^{221}Ta	139.470±2.920
^{222}Ta	147.930±2.980 †
^{223}Ta	155.640±3.020 ‡
^{224}Ta	164.310±3.070 †
^{225}Ta	172.070±3.180 ‡
^{226}Ta	181.080±3.230 †
^{227}Ta	189.150±3.340 †
^{228}Ta	198.520±3.470 †
^{229}Ta	207.090±3.580 †
^{230}Ta	216.130±3.770 †
^{146}W	45.170±1.730 †
^{147}W	38.160±1.710 †
^{148}W	29.390±1.840 †
^{149}W	24.600±1.780 †
^{150}W	17.230±1.580 †
^{151}W	12.300±1.450 †
^{152}W	5.050±1.330 †
^{153}W	0.350±1.280 †
^{154}W	-6.480±1.210 †
^{155}W	-10.970±1.150 †
^{156}W	-17.300±1.020 ‡
^{157}W	-19.640±0.900
^{158}W	-23.490±0.860
^{159}W	-25.320±0.730
^{160}W	-28.920±0.710
^{161}W	-30.340±0.650
^{162}W	-33.650±0.550
^{163}W	-34.770±0.540
^{164}W	-37.920±0.560
^{165}W	-38.840±0.550
^{166}W	-41.710±0.560
^{167}W	-42.440±0.560
^{168}W	-45.100±0.560
^{169}W	-45.430±0.650
^{170}W	-47.530±0.610
^{171}W	-47.650±0.650
^{172}W	-49.460±0.650
^{173}W	-49.300±0.640
^{174}W	-50.660±0.710
^{175}W	-49.930±0.670
^{176}W	-50.970±0.580
^{177}W	-50.080±0.520
^{178}W	-50.540±0.570
^{179}W	-49.420±0.610
^{180}W	-49.470±0.550
^{181}W	-48.170±0.590
^{182}W	-48.200±0.590
^{183}W	-46.180±0.550
^{184}W	-45.420±0.600
^{185}W	-43.220±0.450
^{186}W	-42.410±0.460
^{187}W	-39.830±0.430
^{188}W	-38.900±0.630
^{189}W	-35.740±0.590
^{190}W	-34.590±0.590
^{191}W	-31.560±0.590
^{192}W	-30.310±0.690
^{193}W	-27.090±0.690
^{194}W	-25.550±0.770
^{195}W	-22.220±0.770
^{196}W	-20.710±0.900
^{197}W	-17.260±0.980
^{198}W	-15.190±1.040
^{199}W	-11.720±1.040
^{200}W	-9.000±1.090

Isotope	Mass Excess
^{201}W	-3.360±1.190
^{202}W	0.450±1.190
^{203}W	6.140±1.220
^{204}W	10.190±1.230
^{205}W	16.540±1.340
^{206}W	20.940±1.360
^{207}W	27.350±1.450
^{208}W	32.220±1.530
^{209}W	38.930±1.560
^{210}W	44.290±1.670
^{211}W	51.210±1.680
^{212}W	56.820±1.820
^{213}W	64.280±1.840
^{214}W	70.460±1.880
^{215}W	78.180±2.000
^{216}W	84.540±2.060
^{217}W	92.540±2.180
^{218}W	99.100±2.290
^{219}W	107.190±2.420 †
^{220}W	114.110±2.500
^{221}W	122.230±2.710 †
^{222}W	129.230±2.770
^{223}W	137.540±2.790 †
^{224}W	144.730±2.840
^{225}W	153.300±2.960 †
^{226}W	160.540±2.990
^{227}W	169.590±3.100 †
^{228}W	177.080±3.220 ‡
^{229}W	186.460±3.310 †
^{230}W	194.350±3.470 ‡
^{231}W	203.360±3.600 †
^{154}Re	10.110±1.390 †
^{155}Re	3.260±1.370 †
^{156}Re	-1.800±1.220 †
^{157}Re	-8.220±1.120 †
^{158}Re	-10.930±1.060 †
^{159}Re	-14.840±0.940 †
^{160}Re	-17.150±0.900 †
^{161}Re	-20.840±0.770 †
^{162}Re	-22.640±0.650 †
^{163}Re	-26.110±0.660 †
^{164}Re	-27.580±0.580
^{165}Re	-30.840±0.570
^{166}Re	-32.200±0.610
^{167}Re	-35.080±0.540
^{168}Re	-36.460±0.530
^{169}Re	-38.950±0.610
^{170}Re	-39.700±0.630
^{171}Re	-42.000±0.560
^{172}Re	-42.510±0.680
^{173}Re	-44.450±0.590
^{174}Re	-44.590±0.650
^{175}Re	-45.890±0.670
^{176}Re	-45.840±0.670
^{177}Re	-46.890±0.640
^{178}Re	-46.370±0.570
^{179}Re	-46.880±0.570
^{180}Re	-46.190±0.590
^{181}Re	-46.590±0.520
^{182}Re	-45.600±0.580
^{183}Re	-45.640±0.460
^{184}Re	-43.860±0.580
^{185}Re	-43.520±0.470
^{186}Re	-41.750±0.500
^{187}Re	-41.100±0.390
^{188}Re	-38.890±0.460
^{189}Re	-37.930±0.550
^{190}Re	-35.530±0.450
^{191}Re	-34.450±0.480
^{192}Re	-31.960±0.530
^{193}Re	-30.780±0.640
^{194}Re	-27.970±0.670
^{195}Re	-26.550±0.730
^{196}Re	-23.800±0.690
^{197}Re	-22.270±0.780

Isotope	Mass Excess
^{198}Re	-19.220±0.870
^{199}Re	-17.300±0.880
^{200}Re	-14.190±0.880
^{201}Re	-11.370±0.940
^{202}Re	-6.490±0.920
^{203}Re	-2.520±1.030
^{204}Re	2.580±0.990
^{205}Re	6.920±1.070
^{206}Re	12.730±1.150
^{207}Re	17.220±1.210
^{208}Re	23.120±1.260
^{209}Re	27.970±1.330
^{210}Re	34.370±1.400
^{211}Re	39.550±1.450
^{212}Re	46.130±1.500
^{213}Re	51.780±1.590
^{214}Re	58.910±1.630
^{215}Re	64.910±1.720
^{216}Re	72.110±1.760
^{217}Re	78.420±1.880
^{218}Re	85.810±2.000
^{219}Re	92.400±2.110
^{220}Re	99.900±2.210
^{221}Re	106.600±2.390
^{222}Re	114.430±2.470
^{223}Re	121.280±2.480
^{224}Re	129.070±2.520
^{225}Re	136.160±2.630
^{226}Re	144.210±2.660
^{227}Re	151.480±2.750
^{228}Re	159.950±2.890 †
^{229}Re	167.460±2.960
^{230}Re	176.160±3.090 †
^{231}Re	184.020±3.190 ‡
^{232}Re	192.560±3.320 †
^{152}Os	37.690±1.790 †
^{153}Os	32.030±1.660 †
^{154}Os	24.250±1.550 †
^{155}Os	19.060±1.530 †
^{156}Os	11.650±1.410 †
^{157}Os	6.490±1.290 †
^{158}Os	-0.300±1.230 †
^{159}Os	-3.060±1.090 †
^{160}Os	-7.440±1.060 †
^{161}Os	-9.850±0.940 †
^{162}Os	-13.930±0.800 ‡
^{163}Os	-15.880±0.770
^{164}Os	-19.700±0.690
^{165}Os	-21.270±0.630
^{166}Os	-24.980±0.580
^{167}Os	-26.350±0.630
^{168}Os	-29.870±0.530
^{169}Os	-31.090±0.610
^{170}Os	-34.010±0.630
^{171}Os	-34.960±0.600
^{172}Os	-37.640±0.580
^{173}Os	-38.280±0.600
^{174}Os	-40.520±0.620
^{175}Os	-40.600±0.590
^{176}Os	-42.580±0.640
^{177}Os	-42.540±0.680
^{178}Os	-43.960±0.650
^{179}Os	-43.490±0.590
^{180}Os	-44.420±0.630
^{181}Os	-44.090±0.680
^{182}Os	-44.810±0.620
^{183}Os	-43.830±0.590
^{184}Os	-44.100±0.620
^{185}Os	-42.730±0.570
^{186}Os	-42.830±0.540
^{187}Os	-41.210±0.510
^{188}Os	-40.940±0.490
^{189}Os	-38.710±0.580
^{190}Os	-38.510±0.560
^{191}Os	-36.170±0.480

Isotope	Mass Excess
^{192}Os	-35.630±0.580
^{193}Os	-33.200±0.470
^{194}Os	-32.430±0.650
^{195}Os	-29.750±0.630
^{196}Os	-28.900±0.660
^{197}Os	-26.140±0.620
^{198}Os	-25.010±0.730
^{199}Os	-22.100±0.770
^{200}Os	-20.550±0.810
^{201}Os	-17.340±0.840
^{202}Os	-15.280±0.770
^{203}Os	-10.240±0.860
^{204}Os	-6.870±0.890
^{205}Os	-1.470±0.900
^{206}Os	2.320±0.950
^{207}Os	8.220±1.050
^{208}Os	12.200±1.080
^{209}Os	18.090±1.140
^{210}Os	22.630±1.250
^{211}Os	28.840±1.260
^{212}Os	33.690±1.350
^{213}Os	40.310±1.340
^{214}Os	45.630±1.450
^{215}Os	52.580±1.560
^{216}Os	58.070±1.550
^{217}Os	65.210±1.680
^{218}Os	70.900±1.780
^{219}Os	78.330±1.900
^{220}Os	84.330±1.990
^{221}Os	91.610±2.190
^{222}Os	98.010±2.240
^{223}Os	105.700±2.280
^{224}Os	112.030±2.310
^{225}Os	119.720±2.400
^{226}Os	126.290±2.430
^{227}Os	134.370±2.520 †
^{228}Os	141.060±2.640
^{229}Os	149.550±2.720 †
^{230}Os	156.380±2.830
^{231}Os	165.050±2.900 †
^{232}Os	172.450±3.010
^{233}Os	180.930±3.180 †
^{162}Ir	-0.370±1.000 †
^{163}Ir	-4.600±0.950 †
^{164}Ir	-6.910±0.840 †
^{165}Ir	-10.840±0.820 †
^{166}Ir	-12.850±0.730 †
^{167}Ir	-16.570±0.750 †
^{168}Ir	-18.580±0.640 †
^{169}Ir	-21.940±0.590 †
^{170}Ir	-23.580±0.630 †
^{171}Ir	-26.700±0.650 †
^{172}Ir	-28.030±0.620
^{173}Ir	-30.850±0.580
^{174}Ir	-31.790±0.610
^{175}Ir	-33.980±0.530
^{176}Ir	-34.730±0.620
^{177}Ir	-36.720±0.580
^{178}Ir	-37.050±0.680
^{179}Ir	-38.520±0.660
^{180}Ir	-38.480±0.640
^{181}Ir	-39.760±0.660
^{182}Ir	-39.750±0.740
^{183}Ir	-40.470±0.620
^{184}Ir	-39.720±0.650
^{185}Ir	-40.420±0.590
^{186}Ir	-39.490±0.650
^{187}Ir	-39.730±0.550
^{188}Ir	-38.500±0.500
^{189}Ir	-38.200±0.580
^{190}Ir	-36.720±0.560
^{191}Ir	-36.580±0.560
^{192}Ir	-34.790±0.570
^{193}Ir	-34.310±0.530
^{194}Ir	-32.300±0.520

Isotope	Mass Excess
^{195}Ir	-31.650±0.460
^{196}Ir	-29.540±0.490
^{197}Ir	-28.680±0.610
^{198}Ir	-26.320±0.570
^{199}Ir	-25.330±0.640
^{200}Ir	-22.790±0.650
^{201}Ir	-21.140±0.720
^{202}Ir	-18.680±0.650
^{203}Ir	-16.470±0.680
^{204}Ir	-12.030±0.690
^{205}Ir	-8.350±0.810
^{206}Ir	-3.510±0.760
^{207}Ir	0.380±0.870
^{208}Ir	5.760±0.940
^{209}Ir	9.730±0.960
^{210}Ir	15.310±1.060
^{211}Ir	19.670±1.110
^{212}Ir	25.550±1.180
^{213}Ir	30.430±1.210
^{214}Ir	36.720±1.220
^{215}Ir	41.860±1.410
^{216}Ir	48.300±1.410
^{217}Ir	53.720±1.500
^{218}Ir	60.250±1.600
^{219}Ir	65.990±1.710
^{220}Ir	72.820±1.790
^{221}Ir	78.600±1.990
^{222}Ir	85.590±2.060
^{223}Ir	91.850±2.060
^{224}Ir	99.010±2.100
^{225}Ir	105.240±2.180
^{226}Ir	112.410±2.190
^{227}Ir	119.010±2.270
^{228}Ir	126.510±2.390
^{229}Ir	133.220±2.450
^{230}Ir	141.030±2.570
^{231}Ir	147.830±2.620
^{232}Ir	156.040±2.690 †
^{233}Ir	163.370±2.830
^{234}Ir	171.410±2.970
^{158}Pt	32.000±1.670 †
^{159}Pt	26.420±1.520 †
^{160}Pt	19.100±1.470 †
^{161}Pt	15.770±1.330 †
^{162}Pt	10.900±1.200 †
^{163}Pt	7.960±1.150 †
^{164}Pt	3.370±0.990 †
^{165}Pt	0.960±0.960 †
^{166}Pt	-3.410±0.900 †
^{167}Pt	-5.430±0.890 †
^{168}Pt	-9.790±0.780 ‡
^{169}Pt	-11.650±0.740 ‡
^{170}Pt	-15.430±0.650
^{171}Pt	-17.270±0.670
^{172}Pt	-20.760±0.690
^{173}Pt	-22.230±0.640
^{174}Pt	-25.350±0.590
^{175}Pt	-26.230±0.570
^{176}Pt	-29.090±0.690
^{177}Pt	-29.860±0.670
^{178}Pt	-32.220±0.680
^{179}Pt	-32.600±0.740
^{180}Pt	-34.490±0.710
^{181}Pt	-34.810±0.660
^{182}Pt	-36.420±0.680
^{183}Pt	-36.400±0.600
^{184}Pt	-37.360±0.640
^{185}Pt	-37.030±0.690
^{186}Pt	-38.160±0.640
^{187}Pt	-37.380±0.680
^{188}Pt	-38.010±0.580
^{189}Pt	-36.740±0.610
^{190}Pt	-37.200±0.580
^{191}Pt	-35.790±0.600
^{192}Pt	-36.190±0.670

Isotope	Mass Excess
^{193}Pt	-34.460±0.560
^{194}Pt	-34.400±0.620
^{195}Pt	-32.500±0.700
^{196}Pt	-32.430±0.620
^{197}Pt	-30.310±0.510
^{198}Pt	-29.850±0.560
^{199}Pt	-27.630±0.480
^{200}Pt	-27.010±0.550
^{201}Pt	-24.370±0.650
^{202}Pt	-23.470±0.560
^{203}Pt	-20.870±0.580
^{204}Pt	-19.250±0.560
^{205}Pt	-14.510±0.630
^{206}Pt	-11.380±0.690
^{207}Pt	-6.440±0.690
^{208}Pt	-3.070±0.780
^{209}Pt	2.300±0.840
^{210}Pt	5.960±0.880
^{211}Pt	11.360±0.960
^{212}Pt	15.380±1.020
^{213}Pt	21.290±1.010
^{214}Pt	25.850±1.060
^{215}Pt	31.960±1.130
^{216}Pt	36.580±1.240
^{217}Pt	42.960±1.300
^{218}Pt	47.780±1.360
^{219}Pt	54.350±1.470
^{220}Pt	59.480±1.550
^{221}Pt	66.100±1.750
^{222}Pt	71.590±1.790
^{223}Pt	78.430±1.810
^{224}Pt	84.170±1.830
^{225}Pt	91.230±1.940
^{226}Pt	96.940±1.940
^{227}Pt	104.140±2.010
^{228}Pt	110.160±2.130
^{229}Pt	117.680±2.190
^{230}Pt	123.710±2.290
^{231}Pt	131.490±2.370
^{232}Pt	137.820±2.420
^{233}Pt	145.970±2.530 †
^{234}Pt	152.870±2.640
^{235}Pt	160.880±2.760
^{166}Au	10.680±1.010 †
^{167}Au	6.300±1.020 †
^{168}Au	3.630±0.880 †
^{169}Au	-0.570±0.850 †
^{170}Au	-2.840±0.720 †
^{171}Au	-6.830±0.740 †
^{172}Au	-9.050±0.800 †
^{173}Au	-12.680±0.710 †
^{174}Au	-14.440±0.600 †
^{175}Au	-17.510±0.570 †
^{176}Au	-19.070±0.720
^{177}Au	-21.940±0.710
^{178}Au	-23.070±0.780
^{179}Au	-25.480±0.740
^{180}Au	-26.290±0.780
^{181}Au	-28.540±0.790
^{182}Au	-29.170±0.740
^{183}Au	-30.780±0.700
^{184}Au	-31.000±0.670
^{185}Au	-32.380±0.650
^{186}Au	-32.490±0.690
^{187}Au	-33.770±0.690
^{188}Au	-33.370±0.730
^{189}Au	-33.970±0.620
^{190}Au	-33.460±0.640
^{191}Au	-33.980±0.600
^{192}Au	-33.110±0.640
^{193}Au	-33.580±0.670
^{194}Au	-32.260±0.660
^{195}Au	-32.310±0.680
^{196}Au	-31.000±0.640
^{197}Au	-30.920±0.670

Isotope	Mass Excess
^{198}Au	-29.190±0.630
^{199}Au	-28.880±0.540
^{200}Au	-27.020±0.420
^{201}Au	-26.310±0.490
^{202}Au	-24.420±0.410
^{203}Au	-23.370±0.400
^{204}Au	-21.360±0.510
^{205}Au	-19.440±0.490
^{206}Au	-15.240±0.530
^{207}Au	-12.030±0.620
^{208}Au	-7.600±0.570
^{209}Au	-4.240±0.660
^{210}Au	0.820±0.740
^{211}Au	4.290±0.760
^{212}Au	9.350±0.840
^{213}Au	13.410±0.870
^{214}Au	19.000±0.870
^{215}Au	23.370±0.980
^{216}Au	28.970±1.010
^{217}Au	33.530±1.160
^{218}Au	39.300±1.210
^{219}Au	44.160±1.270
^{220}Au	50.130±1.360
^{221}Au	55.050±1.540
^{222}Au	61.370±1.590
^{223}Au	66.720±1.580
^{224}Au	73.040±1.620
^{225}Au	78.680±1.700
^{226}Au	85.220±1.710
^{227}Au	90.960±1.770
^{228}Au	97.580±1.880
^{229}Au	103.620±1.930
^{230}Au	110.460±2.040
^{231}Au	116.460±2.090
^{232}Au	123.770±2.150
^{233}Au	130.040±2.250
^{234}Au	137.750±2.320
^{235}Au	144.620±2.420
^{236}Au	152.180±2.620
^{163}Hg	36.350±1.520 †
^{164}Hg	30.980±1.350 †
^{165}Hg	27.580±1.310 †
^{166}Hg	22.440±1.200 †
^{167}Hg	19.580±1.170 †
^{168}Hg	14.550±1.070 †
^{169}Hg	12.040±1.010 †
^{170}Hg	7.430±0.830 †
^{171}Hg	4.950±0.860 †
^{172}Hg	0.590±0.830 †
^{173}Hg	-1.760±0.780 ‡
^{174}Hg	-5.700±0.700 ‡
^{175}Hg	-7.410±0.660 ‡
^{176}Hg	-11.140±0.720
^{177}Hg	-12.710±0.750
^{178}Hg	-15.960±0.750
^{179}Hg	-17.140±0.810
^{180}Hg	-19.980±0.800
^{181}Hg	-21.140±0.840
^{182}Hg	-23.710±0.860
^{183}Hg	-24.340±0.660
^{184}Hg	-26.190±0.690
^{185}Hg	-26.830±0.640
^{186}Hg	-28.640±0.580
^{187}Hg	-28.900±0.690
^{188}Hg	-30.560±0.630
^{189}Hg	-30.140±0.660
^{190}Hg	-31.490±0.560
^{191}Hg	-31.050±0.590
^{192}Hg	-32.110±0.630
^{193}Hg	-31.300±0.630
^{194}Hg	-32.190±0.670
^{195}Hg	-30.990±0.680
^{196}Hg	-31.620±0.610
^{197}Hg	-30.290±0.590
^{198}Hg	-30.610±0.670

Isotope	Mass Excess
^{199}Hg	-29.030±0.560
^{200}Hg	-29.080±0.510
^{201}Hg	-27.130±0.480
^{202}Hg	-27.170±0.460
^{203}Hg	-25.120±0.420
^{204}Hg	-24.670±0.380
^{205}Hg	-22.360±0.330
^{206}Hg	-20.980±0.360
^{207}Hg	-16.700±0.440
^{208}Hg	-13.990±0.490
^{209}Hg	-9.580±0.450
^{210}Hg	-6.530±0.580
^{211}Hg	-1.650±0.640
^{212}Hg	1.490±0.660
^{213}Hg	6.580±0.720
^{214}Hg	10.320±0.740
^{215}Hg	15.720±0.840
^{216}Hg	19.580±0.870
^{217}Hg	25.110±0.930
^{218}Hg	29.070±1.060
^{219}Hg	34.880±1.120
^{220}Hg	39.130±1.180
^{221}Hg	44.890±1.350
^{222}Hg	49.520±1.390
^{223}Hg	55.700±1.380
^{224}Hg	60.520±1.410
^{225}Hg	66.740±1.490
^{226}Hg	71.860±1.480
^{227}Hg	78.430±1.560
^{228}Hg	83.590±1.660
^{229}Hg	90.230±1.710
^{230}Hg	95.590±1.800
^{231}Hg	102.400±1.850
^{232}Hg	107.930±1.900
^{233}Hg	115.180±2.010
^{234}Hg	121.020±2.060
^{235}Hg	128.700±2.110
^{236}Hg	135.120±2.280
^{237}Hg	142.600±2.470
^{172}Tl	14.790±1.010 †
^{173}Tl	10.290±0.930 †
^{174}Tl	7.630±0.860 †
^{175}Tl	3.760±0.840 †
^{176}Tl	1.370±0.900 †
^{177}Tl	-2.370±0.840 †
^{178}Tl	-4.310±0.910 †
^{179}Tl	-7.610±0.920 †
^{180}Tl	-9.220±0.930 †
^{181}Tl	-12.410±0.960 †
^{182}Tl	-13.890±1.010
^{183}Tl	-16.460±0.830
^{184}Tl	-17.330±0.800
^{185}Tl	-19.600±0.770
^{186}Tl	-20.670±0.690
^{187}Tl	-22.640±0.680
^{188}Tl	-23.280±0.710
^{189}Tl	-24.910±0.650
^{190}Tl	-25.240±0.600
^{191}Tl	-26.660±0.550
^{192}Tl	-26.760±0.700
^{193}Tl	-27.890±0.680
^{194}Tl	-27.490±0.660
^{195}Tl	-28.500±0.700
^{196}Tl	-27.870±0.620
^{197}Tl	-28.490±0.660
^{198}Tl	-27.560±0.640
^{199}Tl	-28.020±0.620
^{200}Tl	-26.810±0.520
^{201}Tl	-26.760±0.520
^{202}Tl	-25.560±0.540
^{203}Tl	-25.450±0.460
^{204}Tl	-24.000±0.450
^{205}Tl	-23.600±0.380
^{206}Tl	-22.130±0.340
^{207}Tl	-20.970±0.320

Isotope	Mass Excess
^{208}Tl	-16.900±0.330
^{209}Tl	-13.910±0.370
^{210}Tl	-9.460±0.410
^{211}Tl	-6.590±0.480
^{212}Tl	-2.040±0.580
^{213}Tl	1.130±0.540
^{214}Tl	5.900±0.550
^{215}Tl	9.450±0.660
^{216}Tl	14.350±0.700
^{217}Tl	18.140±0.780
^{218}Tl	23.070±0.810
^{219}Tl	27.060±0.950
^{220}Tl	32.270±1.000
^{221}Tl	36.310±1.130
^{222}Tl	41.780±1.150
^{223}Tl	46.260±1.150
^{224}Tl	51.920±1.170
^{225}Tl	56.640±1.250
^{226}Tl	62.340±1.260
^{227}Tl	67.490±1.300
^{228}Tl	73.480±1.420
^{229}Tl	78.660±1.450
^{230}Tl	84.620±1.540
^{231}Tl	89.950±1.590
^{232}Tl	96.290±1.630
^{233}Tl	101.760±1.720
^{234}Tl	108.570±1.790
^{235}Tl	114.380±1.820
^{236}Tl	121.610±1.950
^{237}Tl	127.960±2.110
^{238}Tl	135.040±2.270
^{170}Pb	35.130±1.210 †
^{171}Pb	32.000±1.210 †
^{172}Pb	26.810±1.170 †
^{173}Pb	23.820±1.100 †
^{174}Pb	19.020±1.000 †
^{175}Pb	16.420±0.980 †
^{176}Pb	11.870±1.070 †
^{177}Pb	9.470±0.970 †
^{178}Pb	5.360±0.960 †
^{179}Pb	3.360±1.080 †
^{180}Pb	-0.350±1.020 ‡
^{181}Pb	-2.320±1.110 ‡
^{182}Pb	-5.830±1.130
^{183}Pb	-7.310±1.010
^{184}Pb	-10.120±0.980
^{185}Pb	-11.410±0.890
^{186}Pb	-14.110±0.890
^{187}Pb	-15.340±0.760
^{188}Pb	-17.680±0.730
^{189}Pb	-18.290±0.690
^{190}Pb	-20.680±0.670
^{191}Pb	-21.080±0.620
^{192}Pb	-23.040±0.630
^{193}Pb	-23.210±0.660
^{194}Pb	-24.740±0.650
^{195}Pb	-24.470±0.690
^{196}Pb	-26.050±0.740
^{197}Pb	-25.420±0.720
^{198}Pb	-26.430±0.720
^{199}Pb	-25.650±0.660
^{200}Pb	-26.470±0.670
^{201}Pb	-25.160±0.540
^{202}Pb	-25.870±0.610
^{203}Pb	-24.520±0.550
^{204}Pb	-25.000±0.570
^{205}Pb	-23.600±0.480
^{206}Pb	-23.690±0.410
^{207}Pb	-22.140±0.310
^{208}Pb	-21.490±0.340
^{209}Pb	-17.430±0.340
^{210}Pb	-14.750±0.360
^{211}Pb	-10.180±0.390
^{212}Pb	-7.650±0.430
^{213}Pb	-3.070±0.490

Isotope	Mass Excess
^{214}Pb	-0.220±0.400
^{215}Pb	4.370±0.550
^{216}Pb	7.410±0.610
^{217}Pb	12.240±0.660
^{218}Pb	15.430±0.730
^{219}Pb	20.390±0.770
^{220}Pb	23.790±0.900
^{221}Pb	28.780±1.010
^{222}Pb	32.530±1.000
^{223}Pb	37.850±1.000
^{224}Pb	41.810±1.010
^{225}Pb	47.370±1.070
^{226}Pb	51.560±1.070
^{227}Pb	57.300±1.120
^{228}Pb	61.870±1.220
^{229}Pb	67.880±1.260
^{230}Pb	72.380±1.340
^{231}Pb	78.310±1.380
^{232}Pb	83.170±1.410
^{233}Pb	89.450±1.500
^{234}Pb	94.490±1.540
^{235}Pb	101.270±1.610
^{236}Pb	106.630±1.710
^{237}Pb	113.790±1.820
^{238}Pb	119.720±1.960
^{239}Pb	126.740±2.140
^{182}Bi	7.510±1.270 †
^{183}Bi	4.000±1.120 †
^{184}Bi	2.280±1.170 †
^{185}Bi	-0.940±1.080 †
^{186}Bi	-2.670±1.020 †
^{187}Bi	-5.520±0.980 †
^{188}Bi	-7.130±0.860 †
^{189}Bi	-9.450±0.770 †
^{190}Bi	-10.820±0.790 †
^{191}Bi	-13.270±0.690 †
^{192}Bi	-14.210±0.680
^{193}Bi	-16.240±0.630
^{194}Bi	-16.810±0.640
^{195}Bi	-18.470±0.640
^{196}Bi	-18.770±0.620
^{197}Bi	-20.340±0.700
^{198}Bi	-20.100±0.740
^{199}Bi	-21.260±0.650
^{200}Bi	-20.850±0.640
^{201}Bi	-21.570±0.630
^{202}Bi	-21.020±0.500
^{203}Bi	-21.570±0.540
^{204}Bi	-20.810±0.590
^{205}Bi	-21.000±0.510
^{206}Bi	-19.800±0.490
^{207}Bi	-19.850±0.400
^{208}Bi	-18.810±0.350
^{209}Bi	-18.170±0.400
^{210}Bi	-14.420±0.400
^{211}Bi	-11.920±0.370
^{212}Bi	-7.990±0.360
^{213}Bi	-5.420±0.450
^{214}Bi	-1.160±0.410
^{215}Bi	1.500±0.380
^{216}Bi	5.580±0.500
^{217}Bi	8.550±0.560
^{218}Bi	12.780±0.600
^{219}Bi	16.000±0.690
^{220}Bi	20.370±0.740
^{221}Bi	23.550±0.930
^{222}Bi	28.250±0.900
^{223}Bi	31.850±0.860
^{224}Bi	36.650±0.850
^{225}Bi	40.510±0.910
^{226}Bi	45.540±0.890
^{227}Bi	49.780±0.940
^{228}Bi	54.930±1.040
^{229}Bi	59.520±1.070
^{230}Bi	64.850±1.160

Isotope	Mass Excess
^{231}Bi	69.320±1.190
^{232}Bi	74.780±1.210
^{233}Bi	79.580±1.290
^{234}Bi	85.430±1.340
^{235}Bi	90.430±1.370
^{236}Bi	96.770±1.490
^{237}Bi	102.050±1.580
^{238}Bi	108.810±1.660
^{239}Bi	114.670±1.800
^{240}Bi	121.340±1.950
^{178}Po	33.240±1.280 †
^{179}Po	30.420±1.290 †
^{180}Po	25.830±1.270 †
^{181}Po	23.060±1.330 †
^{182}Po	18.670±1.330 †
^{183}Po	16.380±1.270 †
^{184}Po	12.640±1.310 †
^{185}Po	10.500±1.230 †
^{186}Po	6.840±1.160 †
^{187}Po	4.960±1.130 †
^{188}Po	1.730±1.110 ‡
^{189}Po	0.150±0.950 ‡
^{190}Po	-2.930±0.860 ‡
^{191}Po	-4.360±0.850
^{192}Po	-7.360±0.870
^{193}Po	-8.360±0.750
^{194}Po	-10.800±0.710
^{195}Po	-11.490±0.650
^{196}Po	-13.730±0.650
^{197}Po	-14.020±0.650
^{198}Po	-15.990±0.680
^{199}Po	-15.890±0.680
^{200}Po	-17.420±0.650
^{201}Po	-16.910±0.640
^{202}Po	-18.390±0.590
^{203}Po	-17.670±0.430
^{204}Po	-18.830±0.610
^{205}Po	-17.770±0.500
^{206}Po	-18.500±0.480
^{207}Po	-17.210±0.380
^{208}Po	-17.420±0.300
^{209}Po	-16.440±0.310
^{210}Po	-16.120±0.340
^{211}Po	-12.550±0.370
^{212}Po	-10.340±0.390
^{213}Po	-6.720±0.460
^{214}Po	-4.470±0.380
^{215}Po	-0.400±0.420
^{216}Po	1.750±0.410
^{217}Po	5.760±0.460
^{218}Po	8.130±0.500
^{219}Po	12.400±0.570
^{220}Po	15.020±0.640
^{221}Po	19.170±0.720
^{222}Po	22.060±0.770
^{223}Po	26.620±0.720
^{224}Po	29.700±0.720
^{225}Po	34.400±0.760
^{226}Po	37.730±0.740
^{227}Po	42.800±0.780
^{228}Po	46.450±0.880
^{229}Po	51.620±0.910
^{230}Po	55.530±0.990
^{231}Po	60.830±1.020
^{232}Po	64.840±1.040
^{233}Po	70.240±1.110
^{234}Po	74.610±1.140
^{235}Po	80.410±1.180
^{236}Po	84.970±1.270
^{237}Po	91.230±1.380
^{238}Po	96.110±1.440
^{239}Po	102.800±1.530
^{240}Po	108.320±1.640
^{241}Po	114.850±1.820

Isotope	Mass Excess
^{186}At	20.820±1.380 †
^{187}At	17.010±1.320 †
^{188}At	14.750±1.270 †
^{189}At	11.550±1.190 †
^{190}At	9.210±1.030 †
^{191}At	6.070±0.970 †
^{192}At	4.100±1.040 †
^{193}At	1.030±0.890 †
^{194}At	-0.380±0.870 †
^{195}At	-2.940±0.820 †
^{196}At	-4.210±0.730
^{197}At	-6.430±0.740 †
^{198}At	-7.120±0.770
^{199}At	-9.230±0.640
^{200}At	-9.510±0.680
^{201}At	-10.940±0.620
^{202}At	-11.180±0.600
^{203}At	-12.500±0.510
^{204}At	-12.390±0.520
^{205}At	-13.240±0.520
^{206}At	-12.730±0.460
^{207}At	-13.370±0.400
^{208}At	-12.590±0.350
^{209}At	-12.810±0.320
^{210}At	-11.800±0.350
^{211}At	-11.700±0.320
^{212}At	-8.420±0.340
^{213}At	-6.520±0.440
^{214}At	-3.230±0.430
^{215}At	-1.170±0.440
^{216}At	2.390±0.510
^{217}At	4.480±0.440
^{218}At	7.890±0.470
^{219}At	10.300±0.480
^{220}At	13.950±0.540
^{221}At	16.370±0.630
^{222}At	20.230±0.610
^{223}At	22.970±0.630
^{224}At	27.010±0.610
^{225}At	29.980±0.630
^{226}At	34.160±0.600
^{227}At	37.530±0.620
^{228}At	42.020±0.700
^{229}At	45.690±0.740
^{230}At	50.180±0.830
^{231}At	54.060±0.840
^{232}At	58.890±0.870
^{233}At	62.840±0.930
^{234}At	67.800±0.960
^{235}At	72.130±0.980
^{236}At	77.500±1.070
^{237}At	81.980±1.160
^{238}At	87.840±1.250
^{239}At	92.650±1.300
^{240}At	98.980±1.360
^{241}At	104.370±1.500
^{242}At	110.610±1.630
^{182}Rn	47.810±1.650 †
^{183}Rn	44.720±1.600 †
^{184}Rn	40.080±1.620 †
^{185}Rn	37.140±1.610 †
^{186}Rn	32.540±1.590 †
^{187}Rn	29.820±1.540 †
^{188}Rn	25.620±1.460 †
^{189}Rn	23.390±1.360 †
^{190}Rn	19.430±1.290 †
^{191}Rn	17.030±1.140 †
^{192}Rn	13.350±1.120 ‡
^{193}Rn	11.310±1.090 ‡
^{194}Rn	7.840±1.060 ‡
^{195}Rn	6.300±0.980 ‡
^{196}Rn	3.160±0.920
^{197}Rn	1.910±0.860
^{198}Rn	-0.710±0.900
^{199}Rn	-1.550±0.780

Isotope	Mass Excess
^{200}Rn	-4.030±0.740
^{201}Rn	-4.200±0.680
^{202}Rn	-6.380±0.570
^{203}Rn	-6.470±0.550
^{204}Rn	-8.390±0.600
^{205}Rn	-7.980±0.480
^{206}Rn	-9.370±0.500
^{207}Rn	-8.780±0.410
^{208}Rn	-9.930±0.390
^{209}Rn	-9.160±0.310
^{210}Rn	-9.700±0.320
^{211}Rn	-8.860±0.290
^{212}Rn	-8.750±0.350
^{213}Rn	-5.790±0.420
^{214}Rn	-4.210±0.440
^{215}Rn	-1.100±0.490
^{216}Rn	0.440±0.440
^{217}Rn	3.940±0.540
^{218}Rn	5.430±0.440
^{219}Rn	8.870±0.430
^{220}Rn	10.680±0.460
^{221}Rn	14.120±0.470
^{222}Rn	16.240±0.450
^{223}Rn	19.960±0.430
^{224}Rn	22.180±0.470
^{225}Rn	26.110±0.460
^{226}Rn	28.570±0.450
^{227}Rn	32.780±0.460
^{228}Rn	35.570±0.550
^{229}Rn	40.080±0.550
^{230}Rn	43.070±0.630
^{231}Rn	47.530±0.650
^{232}Rn	50.940±0.660
^{233}Rn	55.710±0.730
^{234}Rn	59.220±0.750
^{235}Rn	64.150±0.760
^{236}Rn	68.040±0.840
^{237}Rn	73.330±0.930
^{238}Rn	77.410±0.990
^{239}Rn	83.190±1.070
^{240}Rn	87.650±1.100
^{241}Rn	93.860±1.190
^{242}Rn	98.960±1.290
^{243}Rn	105.070±1.450
^{192}Fr	26.760±1.310 †
^{193}Fr	23.010±1.190 †
^{194}Fr	20.560±1.220 †
^{195}Fr	16.970±1.120 †
^{196}Fr	14.860±1.080 †
^{197}Fr	11.730±1.020 †
^{198}Fr	10.080±0.950 †
^{199}Fr	7.310±0.900 †
^{200}Fr	6.110±0.840 †
^{201}Fr	3.730±0.780 †
^{202}Fr	2.800±0.690
^{203}Fr	0.770±0.580
^{204}Fr	0.090±0.700
^{205}Fr	-1.530±0.580
^{206}Fr	-1.660±0.430
^{207}Fr	-2.970±0.440
^{208}Fr	-2.880±0.370
^{209}Fr	-4.050±0.360
^{210}Fr	-3.600±0.340
^{211}Fr	-4.310±0.310
^{212}Fr	-3.810±0.280
^{213}Fr	-3.670±0.350
^{214}Fr	-1.030±0.450
^{215}Fr	0.360±0.430
^{216}Fr	2.960±0.540
^{217}Fr	4.450±0.480
^{218}Fr	7.340±0.530
^{219}Fr	8.860±0.450
^{220}Fr	11.700±0.420
^{221}Fr	13.300±0.400
^{222}Fr	16.450±0.400

Isotope	Mass Excess
^{223}Fr	18.430±0.380
^{224}Fr	21.620±0.340
^{225}Fr	23.740±0.340
^{226}Fr	27.150±0.290
^{227}Fr	29.640±0.300
^{228}Fr	33.270±0.390
^{229}Fr	36.080±0.410
^{230}Fr	39.910±0.470
^{231}Fr	42.870±0.480
^{232}Fr	46.860±0.500
^{233}Fr	50.210±0.560
^{234}Fr	54.550±0.590
^{235}Fr	58.020±0.600
^{236}Fr	62.510±0.680
^{237}Fr	66.320±0.750
^{238}Fr	71.210±0.810
^{239}Fr	75.220±0.870
^{240}Fr	80.650±0.930
^{241}Fr	84.980±0.990
^{242}Fr	90.890±1.020
^{243}Fr	95.870±1.150
^{244}Fr	101.590±1.350
^{188}Ra	53.860±1.900 †
^{189}Ra	50.780±1.790 †
^{190}Ra	45.850±1.700 †
^{191}Ra	42.800±1.610 †
^{192}Ra	38.240±1.590 †
^{193}Ra	35.230±1.370 †
^{194}Ra	31.070±1.320 †
^{195}Ra	28.500±1.260 †
^{196}Ra	24.330±1.270 †
^{197}Ra	22.230±1.170 †
^{198}Ra	18.710±1.140 ‡
^{199}Ra	16.910±0.970 ‡
^{200}Ra	13.780±1.000
^{201}Ra	12.680±0.890
^{202}Ra	9.540±0.810
^{203}Ra	8.770±0.720
^{204}Ra	6.140±0.700
^{205}Ra	5.760±0.660
^{206}Ra	3.590±0.550
^{207}Ra	3.540±0.420
^{208}Ra	1.730±0.450
^{209}Ra	1.800±0.330
^{210}Ra	0.320±0.350
^{211}Ra	0.600±0.310
^{212}Ra	-0.460±0.390
^{213}Ra	0.080±0.380
^{214}Ra	-0.100±0.430
^{215}Ra	2.360±0.440
^{216}Ra	3.230±0.480
^{217}Ra	5.770±0.560
^{218}Ra	6.650±0.430
^{219}Ra	9.580±0.530
^{220}Ra	10.500±0.460
^{221}Ra	13.130±0.320
^{222}Ra	14.430±0.350
^{223}Ra	17.440±0.370
^{224}Ra	18.890±0.340
^{225}Ra	21.980±0.260
^{226}Ra	23.580±0.320
^{227}Ra	27.030±0.280
^{228}Ra	28.940±0.330
^{229}Ra	32.590±0.320
^{230}Ra	34.720±0.340
^{231}Ra	38.510±0.350
^{232}Ra	41.000±0.370
^{233}Ra	44.940±0.430
^{234}Ra	47.850±0.450
^{235}Ra	52.160±0.480
^{236}Ra	55.190±0.540
^{237}Ra	59.600±0.630
^{238}Ra	63.010±0.660
^{239}Ra	67.820±0.720
^{240}Ra	71.480±0.750

Isotope	Mass Excess
^{241}Ra	76.780±0.840
^{242}Ra	80.820±0.840
^{243}Ra	86.610±0.910
^{244}Ra	91.190±1.070
^{245}Ra	96.830±1.270
^{198}Ac	31.740±1.270 †
^{199}Ac	28.070±1.160 †
^{200}Ac	25.900±1.030 †
^{201}Ac	22.870±1.060 †
^{202}Ac	21.010±0.900 †
^{203}Ac	18.030±0.850 †
^{204}Ac	16.660±0.810 †
^{205}Ac	14.330±0.700 †
^{206}Ac	13.410±0.680 †
^{207}Ac	11.320±0.570 †
^{208}Ac	10.770±0.490
^{209}Ac	8.940±0.450
^{210}Ac	8.700±0.340
^{211}Ac	7.050±0.330
^{212}Ac	6.980±0.350
^{213}Ac	5.970±0.370
^{214}Ac	6.180±0.340
^{215}Ac	5.810±0.390
^{216}Ac	7.760±0.460
^{217}Ac	8.570±0.450
^{218}Ac	10.500±0.480
^{219}Ac	11.420±0.370
^{220}Ac	13.740±0.510
^{221}Ac	14.450±0.280
^{222}Ac	16.790±0.330
^{223}Ac	17.950±0.350
^{224}Ac	20.430±0.360
^{225}Ac	21.780±0.300
^{226}Ac	24.350±0.330
^{227}Ac	25.980±0.330
^{228}Ac	28.850±0.220
^{229}Ac	30.780±0.280
^{230}Ac	33.750±0.320
^{231}Ac	35.850±0.230
^{232}Ac	39.180±0.290
^{233}Ac	41.610±0.320
^{234}Ac	45.110±0.330
^{235}Ac	47.990±0.350
^{236}Ac	51.850±0.430
^{237}Ac	54.800±0.480
^{238}Ac	58.810±0.530
^{239}Ac	62.150±0.540
^{240}Ac	66.610±0.580
^{241}Ac	70.140±0.650
^{242}Ac	75.150±0.670
^{243}Ac	79.070±0.700
^{244}Ac	84.470±0.800
^{245}Ac	88.960±0.970
^{246}Ac	94.240±1.150
^{192}Th	67.430±1.970 †
^{193}Th	63.780±1.850 †
^{194}Th	58.730±1.770 †
^{195}Th	55.190±1.570 †
^{196}Th	50.340±1.540 †
^{197}Th	47.200±1.520 †
^{198}Th	42.650±1.490 †
^{199}Th	40.010±1.290 †
^{200}Th	35.970±1.250 †
^{201}Th	33.900±1.120 †
^{202}Th	30.110±1.060 ‡
^{203}Th	28.410±0.950 †
^{204}Th	24.840±0.940 ‡
^{205}Th	23.770±0.840 ‡
^{206}Th	20.890±0.730 ‡
^{207}Th	20.050±0.750
^{208}Th	17.460±0.670
^{209}Th	16.900±0.550
^{210}Th	14.750±0.550
^{211}Th	14.330±0.430

Isotope	Mass Excess
^{212}Th	12.340±0.400
^{213}Th	12.310±0.440
^{214}Th	10.970±0.460
^{215}Th	11.000±0.390
^{216}Th	10.120±0.400
^{217}Th	12.000±0.470
^{218}Th	12.210±0.470
^{219}Th	14.180±0.490
^{220}Th	14.490±0.440
^{221}Th	16.610±0.420
^{222}Th	17.020±0.350
^{223}Th	19.220±0.330
^{224}Th	19.850±0.280
^{225}Th	22.240±0.280
^{226}Th	23.070±0.340
^{227}Th	25.670±0.330
^{228}Th	26.720±0.250
^{229}Th	29.610±0.270
^{230}Th	30.860±0.220
^{231}Th	33.790±0.260
^{232}Th	35.420±0.260
^{233}Th	38.690±0.240
^{234}Th	40.690±0.240
^{235}Th	44.150±0.250
^{236}Th	46.590±0.320
^{237}Th	50.380±0.380
^{238}Th	52.930±0.410
^{239}Th	56.860±0.460
^{240}Th	59.850±0.450
^{241}Th	64.180±0.530
^{242}Th	67.420±0.520
^{243}Th	72.310±0.580
^{244}Th	75.830±0.630
^{245}Th	81.140±0.730
^{246}Th	85.280±0.880
^{247}Th	90.410±1.080
^{206}Pa	32.870±0.940 †
^{207}Pa	30.080±0.840 †
^{208}Pa	28.730±0.860 †
^{209}Pa	26.130±0.750 †
^{210}Pa	25.250±0.680 †
^{211}Pa	22.920±0.650 †
^{212}Pa	22.170±0.530 †
^{213}Pa	20.210±0.530 †
^{214}Pa	19.860±0.530 †
^{215}Pa	18.330±0.510 †
^{216}Pa	17.850±0.400
^{217}Pa	16.910±0.510
^{218}Pa	18.180±0.510
^{219}Pa	18.430±0.500
^{220}Pa	19.800±0.500
^{221}Pa	19.900±0.600
^{222}Pa	21.720±0.420
^{223}Pa	21.990±0.430
^{224}Pa	23.660±0.370
^{225}Pa	24.190±0.370
^{226}Pa	26.060±0.290
^{227}Pa	26.920±0.310
^{228}Pa	28.940±0.250
^{229}Pa	30.010±0.300
^{230}Pa	32.220±0.280
^{231}Pa	33.440±0.260
^{232}Pa	35.910±0.230
^{233}Pa	37.480±0.220
^{234}Pa	40.310±0.200
^{235}Pa	42.280±0.200
^{236}Pa	45.290±0.260
^{237}Pa	47.660±0.300
^{238}Pa	51.040±0.320
^{239}Pa	53.510±0.330
^{240}Pa	57.100±0.360
^{241}Pa	59.960±0.400
^{242}Pa	64.000±0.400
^{243}Pa	67.120±0.430
^{244}Pa	71.620±0.500

Isotope	Mass Excess
^{245}Pa	75.050±0.560
^{246}Pa	80.000±0.650
^{247}Pa	83.990±0.820
^{248}Pa	88.800±1.030
^{201}U	60.010±1.570 †
^{202}U	55.320±1.430 †
^{203}U	52.650±1.300 †
^{204}U	48.420±1.250 †
^{205}U	46.420±1.160 †
^{206}U	42.600±1.090 †
^{207}U	41.070±1.050 †
^{208}U	37.770±0.950 †
^{209}U	36.410±0.940 †
^{210}U	33.490±0.880 †
^{211}U	32.430±0.770 ‡
^{212}U	29.770±0.740 ‡
^{213}U	29.060±0.650 ‡
^{214}U	26.770±0.630
^{215}U	26.240±0.610
^{216}U	24.200±0.530
^{217}U	23.650±0.550
^{218}U	22.100±0.600
^{219}U	23.420±0.600
^{220}U	23.060±0.580
^{221}U	24.220±0.670
^{222}U	24.030±0.640
^{223}U	25.700±0.530
^{224}U	25.450±0.470
^{225}U	27.020±0.420
^{226}U	27.030±0.350
^{227}U	28.930±0.310
^{228}U	29.210±0.280
^{229}U	31.260±0.260
^{230}U	31.650±0.280
^{231}U	33.820±0.220
^{232}U	34.570±0.210
^{233}U	36.980±0.220
^{234}U	38.120±0.240
^{235}U	40.920±0.220
^{236}U	42.440±0.200
^{237}U	45.380±0.200
^{238}U	47.340±0.200
^{239}U	50.640±0.200
^{240}U	52.770±0.200
^{241}U	56.230±0.270
^{242}U	58.800±0.240
^{243}U	62.720±0.270
^{244}U	65.440±0.320
^{245}U	69.850±0.380
^{246}U	72.930±0.450
^{247}U	77.730±0.550
^{248}U	81.400±0.730
^{249}U	86.060±0.870
^{210}Np	46.130±1.080 †
^{211}Np	43.030±1.000 †
^{212}Np	41.640±0.890 †
^{213}Np	39.010±0.860 †
^{214}Np	37.970±0.760 †
^{215}Np	35.500±0.740 †
^{216}Np	34.460±0.680 †
^{217}Np	32.350±0.700 †
^{218}Np	31.200±0.680 †
^{219}Np	29.690±0.730 †
^{220}Np	30.400±0.690
^{221}Np	29.840±0.780
^{222}Np	30.700±0.740
^{223}Np	30.360±0.710
^{224}Np	31.520±0.600
^{225}Np	31.160±0.510
^{226}Np	32.210±0.440
^{227}Np	32.260±0.390
^{228}Np	33.570±0.370
^{229}Np	33.880±0.310
^{230}Np	35.240±0.290

Isotope	Mass Excess
^{231}Np	35.600±0.270
^{232}Np	37.300±0.200
^{233}Np	38.000±0.220
^{234}Np	39.970±0.200
^{235}Np	41.070±0.260
^{236}Np	43.430±0.200
^{237}Np	44.870±0.200
^{238}Np	47.410±0.200
^{239}Np	49.290±0.200
^{240}Np	52.250±0.200
^{241}Np	54.250±0.200
^{242}Np	57.420±0.200
^{243}Np	59.860±0.200
^{244}Np	63.390±0.210
^{245}Np	66.020±0.260
^{246}Np	70.080±0.310
^{247}Np	73.010±0.410
^{248}Np	77.490±0.510
^{249}Np	81.010±0.620
^{250}Np	85.410±0.750
^{208}Pu	62.440±1.340 †
^{209}Pu	60.390±1.290 †
^{210}Pu	56.760±1.200 †
^{211}Pu	54.910±1.180 †
^{212}Pu	51.480±1.110 †
^{213}Pu	50.120±1.020 †
^{214}Pu	47.170±0.960 †
^{215}Pu	45.940±0.880 †
^{216}Pu	42.960±0.800 †
^{217}Pu	41.850±0.850 †
^{218}Pu	39.140±0.830 ‡
^{219}Pu	38.030±0.810
^{220}Pu	35.920±0.810
^{221}Pu	36.420±0.890
^{222}Pu	35.560±0.850
^{223}Pu	36.280±0.820
^{224}Pu	35.420±0.740
^{225}Pu	36.470±0.620
^{226}Pu	35.600±0.530
^{227}Pu	36.680±0.470
^{228}Pu	36.140±0.490
^{229}Pu	37.480±0.390
^{230}Pu	37.100±0.370
^{231}Pu	38.430±0.300
^{232}Pu	38.320±0.220
^{233}Pu	39.970±0.220
^{234}Pu	40.220±0.250
^{235}Pu	42.170±0.250
^{236}Pu	42.820±0.210
^{237}Pu	45.100±0.200
^{238}Pu	46.140±0.200
^{239}Pu	48.610±0.200
^{240}Pu	50.150±0.200
^{241}Pu	52.970±0.200
^{242}Pu	54.680±0.200
^{243}Pu	57.730±0.200
^{244}Pu	59.780±0.200
^{245}Pu	63.210±0.200
^{246}Pu	65.500±0.220
^{247}Pu	69.400±0.270
^{248}Pu	72.010±0.380
^{249}Pu	76.340±0.430
^{250}Pu	79.600±0.510
^{251}Pu	83.840±0.660
^{214}Am	60.420±1.140 †
^{215}Am	57.290±1.110 †
^{216}Am	55.550±0.980 †
^{217}Am	52.510±0.990 †
^{218}Am	50.790±1.000 †
^{219}Am	48.120±1.000 †
^{220}Am	46.400±0.940 †
^{221}Am	44.080±1.050 †
^{222}Am	44.290±0.970 †
^{223}Am	43.280±0.930 †

Isotope	Mass Excess
^{224}Am	43.480±0.870
^{225}Am	42.520±0.800
^{226}Am	43.050±0.660
^{227}Am	42.210±0.570
^{228}Am	42.710±0.590
^{229}Am	42.190±0.510
^{230}Am	42.850±0.460
^{231}Am	42.440±0.410
^{232}Am	43.300±0.350
^{233}Am	43.130±0.330
^{234}Am	44.350±0.310
^{235}Am	44.570±0.290
^{236}Am	46.060±0.210
^{237}Am	46.650±0.230
^{238}Am	48.520±0.210
^{239}Am	49.490±0.200
^{240}Am	51.610±0.220
^{241}Am	53.010±0.200
^{242}Am	55.550±0.240
^{243}Am	57.140±0.240
^{244}Am	59.790±0.200
^{245}Am	61.750±0.200
^{246}Am	64.830±0.230
^{247}Am	66.960±0.210
^{248}Am	70.550±0.220
^{249}Am	73.010±0.330
^{250}Am	77.080±0.300
^{251}Am	80.170±0.410
^{252}Am	84.010±0.570
^{212}Cm	77.500±1.460 †
^{213}Cm	75.350±1.450 †
^{214}Cm	71.630±1.370 †
^{215}Cm	69.760±1.290 †
^{216}Cm	66.110±1.190 †
^{217}Cm	64.310±1.170 †
^{218}Cm	60.660±1.140 †
^{219}Cm	58.980±1.160 †
^{220}Cm	55.710±1.120 †
^{221}Cm	53.780±1.190 †
^{222}Cm	51.170±1.120 ‡
^{223}Cm	51.230±1.040 ‡
^{224}Cm	49.700±0.980
^{225}Cm	49.790±0.920
^{226}Cm	48.310±0.840
^{227}Cm	48.880±0.730
^{228}Cm	47.460±0.710
^{229}Cm	47.980±0.620
^{230}Cm	46.780±0.590
^{231}Cm	47.410±0.520
^{232}Cm	46.530±0.450
^{233}Cm	47.330±0.460
^{234}Cm	46.730±0.380
^{235}Cm	47.910±0.340
^{236}Cm	47.690±0.310
^{237}Cm	49.110±0.290
^{238}Cm	49.280±0.280
^{239}Cm	51.090±0.240
^{240}Cm	51.710±0.200
^{241}Cm	53.690±0.200
^{242}Cm	54.810±0.200
^{243}Cm	57.230±0.200
^{244}Cm	58.420±0.200
^{245}Cm	60.980±0.200
^{246}Cm	62.590±0.200
^{247}Cm	65.520±0.200
^{248}Cm	67.330±0.200
^{249}Cm	70.770±0.200
^{250}Cm	72.960±0.240
^{251}Cm	76.870±0.280
^{252}Cm	79.560±0.370
^{253}Cm	83.300±0.550
^{220}Bk	68.830±1.300 †
^{221}Bk	65.350±1.360 †
^{222}Bk	63.130±1.270 †

Isotope	Mass Excess
^{223}Bk	60.370±1.220 †
^{224}Bk	59.910±1.110 †
^{225}Bk	58.280±1.050 †
^{226}Bk	57.850±0.970 †
^{227}Bk	56.400±0.920 †
^{228}Bk	56.390±0.870 †
^{229}Bk	54.980±0.740 †
^{230}Bk	54.830±0.720
^{231}Bk	53.600±0.650
^{232}Bk	53.760±0.560
^{233}Bk	52.820±0.550
^{234}Bk	53.190±0.490
^{235}Bk	52.550±0.400
^{236}Bk	53.280±0.380
^{237}Bk	52.990±0.360
^{238}Bk	54.000±0.330
^{239}Bk	54.110±0.300
^{240}Bk	55.560±0.240
^{241}Bk	56.050±0.200
^{242}Bk	57.750±0.200
^{243}Bk	58.740±0.200
^{244}Bk	60.760±0.210
^{245}Bk	61.870±0.200
^{246}Bk	64.070±0.220
^{247}Bk	65.530±0.220
^{248}Bk	68.140±0.210
^{249}Bk	69.810±0.220
^{250}Bk	72.980±0.250
^{251}Bk	75.010±0.270
^{252}Bk	78.520±0.220
^{253}Bk	81.110±0.320
^{254}Bk	84.550±0.540
^{216}Cf	93.470±1.630 †
^{217}Cf	91.030±1.590 †
^{218}Cf	86.710±1.560 †
^{219}Cf	84.350±1.510 †
^{220}Cf	80.130±1.450 †
^{221}Cf	77.640±1.550 †
^{222}Cf	73.860±1.460 †
^{223}Cf	71.500±1.370 †
^{224}Cf	68.210±1.320 †
^{225}Cf	67.650±1.210 †
^{226}Cf	65.500±1.130 ‡
^{227}Cf	65.110±1.080 ‡
^{228}Cf	63.080±1.080 ‡
^{229}Cf	63.080±0.920
^{230}Cf	61.000±0.880
^{231}Cf	60.810±0.830
^{232}Cf	59.110±0.740
^{233}Cf	59.210±0.690
^{234}Cf	57.840±0.650
^{235}Cf	58.180±0.590
^{236}Cf	57.090±0.520
^{237}Cf	57.750±0.490
^{238}Cf	57.050±0.440
^{239}Cf	57.990±0.380
^{240}Cf	57.750±0.320
^{241}Cf	59.080±0.290
^{242}Cf	59.270±0.200
^{243}Cf	60.850±0.200
^{244}Cf	61.450±0.210
^{245}Cf	63.380±0.220
^{246}Cf	64.130±0.230
^{247}Cf	66.190±0.250
^{248}Cf	67.320±0.250
^{249}Cf	69.790±0.260
^{250}Cf	71.190±0.300
^{251}Cf	74.200±0.310
^{252}Cf	75.830±0.300
^{253}Cf	79.240±0.210
^{254}Cf	81.530±0.320
^{255}Cf	84.830±0.520
^{225}Es	78.250±1.430 †
^{226}Es	77.170±1.280 †

Isotope	Mass Excess	
^{227}Es	75.050±1.230	†
^{228}Es	74.070±1.240	†
^{229}Es	72.060±1.140	†
^{230}Es	71.390±1.060	†
^{231}Es	69.270±0.970	†
^{232}Es	68.620±0.900	†
^{233}Es	66.860±0.850	†
^{234}Es	66.520±0.770	†
^{235}Es	65.120±0.740	
^{236}Es	65.010±0.700	
^{237}Es	63.850±0.630	
^{238}Es	64.110±0.590	
^{239}Es	63.330±0.530	
^{240}Es	63.930±0.470	
^{241}Es	63.550±0.430	
^{242}Es	64.590±0.310	
^{243}Es	64.660±0.220	
^{244}Es	65.840±0.200	
^{245}Es	66.350±0.200	
^{246}Es	67.930±0.230	
^{247}Es	68.530±0.220	
^{248}Es	70.270±0.240	
^{249}Es	71.260±0.270	
^{250}Es	73.460±0.290	
^{251}Es	74.690±0.390	
^{252}Es	77.300±0.340	
^{253}Es	78.840±0.300	
^{254}Es	81.950±0.200	
^{255}Es	84.100±0.310	
^{256}Es	87.160±0.480	
^{222}Fm	101.240±1.820	†
^{223}Fm	98.310±1.770	†
^{224}Fm	93.860±1.660	†
^{225}Fm	90.870±1.600	†
^{226}Fm	86.970±1.500	†
^{227}Fm	85.920±1.390	†
^{228}Fm	83.220±1.390	†
^{229}Fm	82.270±1.300	†
^{230}Fm	79.580±1.280	†
^{231}Fm	78.870±1.150	†
^{232}Fm	76.290±1.060	‡
^{233}Fm	75.570±1.010	‡
^{234}Fm	73.380±0.930	
^{235}Fm	73.010±0.840	
^{236}Fm	71.160±0.840	
^{237}Fm	70.970±0.800	
^{238}Fm	69.410±0.720	
^{239}Fm	69.600±0.670	
^{240}Fm	68.470±0.590	
^{241}Fm	68.940±0.560	
^{242}Fm	68.270±0.420	
^{243}Fm	69.180±0.340	
^{244}Fm	68.860±0.290	
^{245}Fm	69.960±0.270	
^{246}Fm	70.110±0.260	
^{247}Fm	71.540±0.260	
^{248}Fm	71.820±0.270	
^{249}Fm	73.410±0.280	
^{250}Fm	74.140±0.260	
^{251}Fm	76.180±0.340	
^{252}Fm	77.010±0.370	
^{253}Fm	79.520±0.370	
^{254}Fm	80.750±0.280	
^{255}Fm	83.720±0.250	
^{256}Fm	85.630±0.300	
^{257}Fm	88.380±0.400	
^{231}Md	89.290±1.400	†
^{232}Md	88.110±1.280	†
^{233}Md	85.470±1.210	†
^{234}Md	84.320±1.130	†
^{235}Md	82.090±1.030	†
^{236}Md	81.280±0.990	†
^{237}Md	79.350±0.970	†
^{238}Md	78.760±0.910	†

Isotope	Mass Excess	
^{239}Md	77.130±0.810	†
^{240}Md	76.960±0.740	†
^{241}Md	75.710±0.700	
^{242}Md	75.880±0.570	
^{243}Md	75.100±0.500	
^{244}Md	75.610±0.460	
^{245}Md	75.210±0.430	
^{246}Md	75.940±0.380	
^{247}Md	75.950±0.350	
^{248}Md	77.060±0.360	
^{249}Md	77.190±0.310	
^{250}Md	78.520±0.240	
^{251}Md	79.080±0.280	
^{252}Md	80.720±0.300	
^{253}Md	81.450±0.370	
^{254}Md	83.660±0.290	
^{255}Md	84.760±0.210	
^{256}Md	87.480±0.200	
^{257}Md	89.080±0.230	
^{258}Md	91.550±0.370	
^{228}No	107.660±1.870	†
^{229}No	106.050±1.710	†
^{230}No	102.690±1.670	†
^{231}No	101.020±1.610	†
^{232}No	97.830±1.540	†
^{233}No	96.600±1.440	†
^{234}No	93.520±1.340	†
^{235}No	92.340±1.250	†
^{236}No	89.670±1.190	†
^{237}No	88.780±1.140	†
^{238}No	86.450±1.100	‡
^{239}No	85.790±1.030	‡
^{240}No	83.810±0.920	
^{241}No	83.510±0.880	
^{242}No	81.960±0.750	
^{243}No	82.020±0.670	
^{244}No	80.830±0.630	
^{245}No	81.260±0.580	
^{246}No	80.500±0.530	
^{247}No	81.090±0.480	
^{248}No	80.780±0.480	
^{249}No	81.740±0.420	
^{250}No	81.610±0.330	
^{251}No	82.770±0.260	
^{252}No	82.930±0.250	
^{253}No	84.470±0.310	
^{254}No	84.900±0.320	
^{255}No	86.970±0.290	
^{256}No	87.820±0.280	
^{257}No	90.240±0.240	
^{258}No	91.560±0.220	
^{259}No	94.040±0.340	
^{236}Lr	101.730±1.400	†
^{237}Lr	98.990±1.340	†
^{238}Lr	97.690±1.260	†
^{239}Lr	95.290±1.210	†
^{240}Lr	94.280±1.120	†
^{241}Lr	92.170±1.050	†
^{242}Lr	91.580±0.930	†
^{243}Lr	89.910±0.830	†
^{244}Lr	89.570±0.800	†
^{245}Lr	88.300±0.760	†
^{246}Lr	88.380±0.690	
^{247}Lr	87.460±0.640	
^{248}Lr	87.730±0.620	
^{249}Lr	87.270±0.550	
^{250}Lr	87.970±0.460	
^{251}Lr	87.670±0.380	
^{252}Lr	88.430±0.350	
^{253}Lr	88.500±0.280	
^{254}Lr	89.740±0.330	
^{255}Lr	90.030±0.320	
^{256}Lr	91.860±0.320	
^{257}Lr	92.400±0.300	

Isotope	Mass Excess	
^{258}Lr	94.530±0.330	
^{259}Lr	95.860±0.200	
^{260}Lr	97.990±0.280	
^{233}Rf	121.010±1.890	†
^{234}Rf	117.320±1.820	†
^{235}Rf	115.620±1.680	†
^{236}Rf	112.070±1.620	†
^{237}Rf	110.360±1.570	†
^{238}Rf	107.210±1.480	†
^{239}Rf	105.850±1.380	†
^{240}Rf	103.100±1.310	†
^{241}Rf	101.950±1.250	†
^{242}Rf	99.550±1.110	†
^{243}Rf	98.840±1.020	‡
^{244}Rf	96.780±0.970	‡
^{245}Rf	96.350±0.930	
^{246}Rf	94.730±0.870	
^{247}Rf	94.650±0.810	
^{248}Rf	93.420±0.790	
^{249}Rf	93.540±0.710	
^{250}Rf	92.810±0.600	
^{251}Rf	93.350±0.530	
^{252}Rf	92.650±0.490	
^{253}Rf	93.310±0.430	
^{254}Rf	93.080±0.460	
^{255}Rf	94.180±0.380	
^{256}Rf	94.230±0.380	
^{257}Rf	95.750±0.390	
^{258}Rf	96.000±0.380	
^{259}Rf	98.150±0.300	
^{260}Rf	99.130±0.250	
^{261}Rf	101.010±0.200	
^{242}Ha	111.490±1.390	†
^{243}Ha	108.960±1.290	†
^{244}Ha	107.850±1.240	†
^{245}Ha	105.700±1.180	†
^{246}Ha	104.920±1.130	†
^{247}Ha	103.150±1.080	†
^{248}Ha	102.750±1.020	†
^{249}Ha	101.370±0.940	†
^{250}Ha	101.230±0.810	†
^{251}Ha	100.340±0.720	†
^{252}Ha	100.470±0.680	
^{253}Ha	99.680±0.630	
^{254}Ha	100.040±0.660	
^{255}Ha	99.660±0.570	
^{256}Ha	100.520±0.520	
^{257}Ha	100.260±0.480	
^{258}Ha	101.500±0.500	
^{259}Ha	101.770±0.330	
^{260}Ha	103.560±0.250	
^{261}Ha	104.290±0.200	
^{262}Ha	105.590±0.250	
^{240}Sg	127.000±1.830	†
^{241}Sg	125.160±1.750	†
^{242}Sg	121.990±1.650	†
^{243}Sg	120.430±1.570	†
^{244}Sg	117.510±1.510	†
^{245}Sg	116.320±1.460	†
^{246}Sg	113.820±1.380	†
^{247}Sg	112.880±1.330	†
^{248}Sg	110.790±1.280	†
^{249}Sg	110.240±1.170	†
^{250}Sg	108.600±1.040	‡
^{251}Sg	108.290±0.940	‡
^{252}Sg	107.000±0.890	
^{253}Sg	107.040±0.830	
^{254}Sg	105.940±0.850	
^{255}Sg	106.170±0.800	
^{256}Sg	105.550±0.730	
^{257}Sg	106.090±0.630	
^{258}Sg	105.550±0.580	
^{259}Sg	106.800±0.480	
^{260}Sg	106.720±0.280	

Isotope	Mass Excess	
^{261}Sg	108.260±0.300	
^{262}Sg	108.410±0.200	
^{263}Sg	110.090±0.200	
^{251}Ns	118.180±1.230	†
^{252}Ns	117.480±1.170	†
^{253}Ns	116.090±1.100	†
^{254}Ns	115.820±1.110	†
^{255}Ns	114.590±1.050	†
^{256}Ns	114.570±1.010	†
^{257}Ns	113.640±0.880	†
^{258}Ns	113.900±0.780	†
^{259}Ns	113.370±0.650	†
^{260}Ns	114.270±0.430	†
^{261}Ns	113.940±0.320	
^{262}Ns	114.900±0.220	
^{263}Ns	115.440±0.200	
^{264}Ns	116.740±0.200	
^{240}Hs	154.570±2.490	†
^{241}Hs	151.910±2.390	†
^{242}Hs	147.920±2.260	†
^{243}Hs	145.660±2.160	†
^{244}Hs	141.980±2.130	†
^{245}Hs	139.940±2.080	†
^{246}Hs	136.570±2.000	†
^{247}Hs	134.880±1.930	†
^{248}Hs	131.910±1.870	†
^{249}Hs	130.500±1.760	†
^{250}Hs	128.000±1.620	‡
^{251}Hs	127.030±1.500	‡
^{252}Hs	124.820±1.450	‡
^{253}Hs	124.010±1.370	‡
^{254}Hs	122.320±1.370	‡
^{255}Hs	121.920±1.300	‡
^{256}Hs	120.440±1.260	
^{257}Hs	120.110±1.160	
^{258}Hs	118.900±1.040	
^{259}Hs	119.180±0.880	
^{260}Hs	118.290±0.610	
^{261}Hs	118.940±0.540	
^{262}Hs	118.030±0.370	
^{263}Hs	119.380±0.200	
^{264}Hs	119.540±0.200	
^{265}Hs	120.990±0.200	
^{256}Mt	131.560±1.520	†
^{257}Mt	129.770±1.420	†
^{258}Mt	129.160±1.320	†
^{259}Mt	127.960±1.140	†
^{260}Mt	127.880±0.840	†
^{261}Mt	126.750±0.730	†
^{262}Mt	126.820±0.620	†
^{263}Mt	126.300±0.360	†
^{264}Mt	127.270±0.200	†
^{265}Mt	127.570±0.200	†