

Artificial and Natural Nuclides Table

Dr. M. Ragheb
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Atomic Number	Chemical Name	Transformation Mode or Abundance	Mass Excess (M-A)	Atomic Mass M	Spin Parity
Z	Symbol	(percent)	(MeV)	(amu)	Spin/Par
1	H	100	7.289	1.007825	1/2+
1	n	-ve beta	8.0713	1.008665	1/2+
2	H	0.01	13.1357	2.014102	1+
3	H	-ve beta	14.9498	3.016049	1/2+
3	He	0	14.9312	3.016029	1/2+
4	H	neutron	26.0017	4.027914	2-
4	He	100	2.4249	4.002603	0+
4	Li	proton	25.3202	4.027182	2-
5	H	neutron	38.4924	5.041323	3/2-
5	He	neutron	11.3862	5.012223	3/2-
5	Li	proton	11.6789	5.012538	3/2-
6	Be	positron	18.3745	6.019726	0+
6	H	-ve beta	41.8638	6.044942	?-
6	He	-ve beta	17.5941	6.018888	0+
6	Li	7.5	14.0863	6.015122	1+
7	B	proton	27.8679	7.029917	3/2-
7	Be	electron capture	15.7695	7.016929	3/2-
7	He	neutron	26.1103	7.02803	3/2-
7	Li	92.5	14.9077	7.016004	3/2-
8	B	positron	22.921	8.024607	2+
8	Be	alpha	4.9417	8.005305	0+
8	C	positron	35.0941	8.037675	0+
8	He	-ve beta	31.598	8.033922	0+
8	Li	-ve beta	20.9452	8.022485	2+
9	B	proton	12.4158	9.013329	3/2-
9	Be	100	11.3477	9.012182	3/2-
9	C	positron	28.914	9.03104	3/2-
9	He	neutron	40.8185	9.04382	1/2-
9	Li	-ve beta	24.954	9.026789	3/2-
10	B	19.9	12.0508	10.012937	3+
10	Be	-ve beta	12.6067	10.013534	0+
10	C	positron	15.6986	10.016853	0+
10	He	-ve beta	48.81	10.052399	0+
10	Li	neutron	33.4446	10.035904	2-
10	N	proton	39.699	10.042618	?-
11	B	80.1	8.668	11.009305	3/2-
11	Be	-ve beta	20.1741	11.021658	1/2+

11	C	positron	10.6502	11.011433	3/2-
11	Li	-ve beta	40.7881	11.043787	3/2-
11	N	proton	25.2805	11.02714	1/2+
12	B	-ve beta	13.3689	12.014352	1+
12	Be	-ve beta	25.0765	12.026921	0+
12	C	98.9	0	12	0+
12	N	positron	17.3381	12.018613	1+
12	O	positron	32.0633	12.034421	0+
13	B	-ve beta	16.5623	13.01778	3/2-
13	Be	neutron	35.1584	13.037744	1/2+
13	C	1.11	3.125	13.003355	1/2-
13	N	positron	5.3455	13.005739	1/2-
13	O	positron	23.1107	13.02481	3/2-
14	B	-ve beta	23.6637	14.025404	2-
14	Be	-ve beta	39.8824	14.042815	0+
14	C	-ve beta	3.0199	14.003242	0+
14	F	proton	33.608	14.036079	2-
14	N	99.6	2.8634	14.003074	1+
14	O	positron	8.0065	14.008595	0+
15	B	-ve beta	28.9669	15.031097	3/2-
15	C	-ve beta	9.8731	15.010599	1/2+
15	F	proton	16.777	15.018011	1/2+
15	N	0.37	0.1015	15.000109	1/2-
15	Ne	proton	41.386	15.044429	?-
15	O	positron	2.8555	15.003065	1/2-
16	B	neutron	37.139	16.03987	0-
16	C	-ve beta	13.6941	16.014701	0+
16	F	proton	10.6803	16.011466	0-
16	N	-ve beta	5.682	16.0061	2-
16	Ne	positron	23.9887	16.025753	0+
16	O	99.8	-4.737	15.994915	0+
17	B	-ve beta	43.7163	17.046931	3/2-
17	C	-ve beta	21.0366	17.022584	5/2-
17	F	positron	1.9517	17.002095	5/2+
17	N	-ve beta	7.8708	17.00845	1/2-
17	Na	proton	35.173	17.037759	?-
17	Ne	positron	16.4852	17.017697	1/2-
17	O	0.04	-0.809	16.999132	5/2+
18	B	neutron	52.322	18.05617	?-
18	C	-ve beta	24.924	18.026757	0+
18	F	positron	0.8734	18.000938	1+
18	N	-ve beta	13.1171	18.014082	1-
18	Na	proton	25.318	18.02718	3-
18	Ne	positron	5.3191	18.00571	0+
18	O	0.2	-0.7821	17.99916	0+
19	B	-ve beta	59.364	19.063729	?-
19	C	-ve beta	32.8334	19.035248	5/2-
19	F	100	-1.4874	18.998403	1/2+
19	Mg	positron	31.95	19.034299	?-
19	N	-ve beta	15.8604	19.017027	1/2-
19	Na	proton	12.9286	19.013879	5/2-

19	Ne	positron	1.751	19.00188	1/2+
19	O	-ve beta	3.3322	19.003577	5/2+
20	C	-ve beta	37.5601	20.040322	0+
20	F	-ve beta	-0.0174	19.999981	2+
20	Mg	positron	17.5705	20.018863	0+
20	N	-ve beta	21.7665	20.023367	3-
20	Na	positron	6.8449	20.007348	2+
20	Ne	90.5	-7.0419	19.99244	0+
20	O	-ve beta	3.7969	20.004076	0+
21	Al	proton	26.119	21.02804	?-
21	C	neutron	45.96	21.04934	?-
21	F	-ve beta	-0.0476	20.999949	5/2+
21	Mg	positron	10.9117	21.011714	3/2+
21	N	-ve beta	25.2319	21.027087	1/2-
21	Na	positron	-2.1843	20.997655	3/2+
21	Ne	0.27	-5.7317	20.993847	3/2+
21	O	-ve beta	8.0617	21.008655	1/2-
22	Al	positron	18.183	22.01952	?-
22	C	-ve beta	52.583	22.05645	0+
22	F	-ve beta	2.7938	22.002999	4+
22	Mg	positron	-0.3968	21.999574	0+
22	N	-ve beta	32.0809	22.03444	1-
22	Na	positron	-5.1822	21.994437	3+
22	Ne	9.25	-8.0244	21.991386	0+
22	O	-ve beta	9.2843	22.009967	0+
22	Si	positron	32.164	22.034529	0+
23	Al	positron	6.7672	23.007265	5/2-
23	F	-ve beta	3.3295	23.003574	3/2+
23	Mg	positron	-5.4727	22.994125	3/2+
23	N	-ve beta	37.735	23.04051	?-
23	Na	100	-9.5295	22.98977	3/2+
23	Ne	-ve beta	-5.1537	22.994467	5/2+
23	O	-ve beta	14.6164	23.015691	1/2-
23	Si	positron	23.772	23.02552	?-
24	Al	positron	-0.0551	23.999941	4+
24	F	-ve beta	7.5445	24.008099	1+
24	Mg	79	-13.9334	23.985042	0+
24	N	neutron	47.04	24.050499	?-
24	Na	-ve beta	-8.4176	23.990963	4+
24	Ne	-ve beta	-5.9475	23.993615	0+
24	O	-ve beta	18.9745	24.02037	0+
24	P	proton	31.997	24.03435	?-
24	Si	positron	10.7547	24.011546	0+
25	Al	positron	-8.9158	24.990429	5/2+
25	F	-ve beta	11.2664	25.012095	5/2-
25	Mg	10	-13.1927	24.985837	5/2+
25	Na	-ve beta	-9.3575	24.989954	5/2+
25	Ne	-ve beta	-2.0587	24.99779	1/2+
25	O	neutron	27.144	25.02914	?-
25	P	proton	18.872	25.02026	?-
25	Si	positron	3.8253	25.004107	5/2+

26	Al	positron	-12.2103	25.986892	5+
26	F	-ve beta	18.2882	26.019633	4-
26	Mg	11	-16.2145	25.982593	0+
26	Na	-ve beta	-6.9025	25.99259	3+
26	Ne	-ve beta	0.4298	26.000461	0+
26	O	-ve beta	35.164	26.03775	0+
26	P	positron	10.973	26.01178	3+
26	S	positron	25.97	26.02788	0+
26	Si	positron	-7.1447	25.99233	0+
27	Al	100	-17.1969	26.981539	5/2+
27	F	-ve beta	25.05	27.026892	5/2-
27	Mg	-ve beta	-14.5865	26.984341	1/2+
27	Na	-ve beta	-5.5809	26.994009	5/2+
27	Ne	-ve beta	7.0935	27.007615	3/2-
27	P	positron	-0.7529	26.999192	1/2+
27	S	positron	17.507	27.018794	?-
27	Si	positron	-12.385	26.986704	5/2+
28	Al	-ve beta	-16.8506	27.98191	3+
28	Cl	proton	26.557	28.02851	?-
28	F	neutron	33.226	28.035669	?-
28	Mg	-ve beta	-15.0188	27.983877	0+
28	Na	-ve beta	-1.0336	27.99889	1+
28	Ne	-ve beta	11.2786	28.012108	0+
28	P	positron	-7.1611	27.992312	3+
28	S	positron	4.0731	28.004373	0+
28	Si	92.2	-21.4928	27.976927	0+
29	Al	-ve beta	-18.2155	28.980445	5/2+
29	Cl	proton	13.143	29.014109	?-
29	F	-ve beta	40.296	29.043259	?-
29	Mg	-ve beta	-10.6612	28.988555	3/2+
29	Na	-ve beta	2.6188	29.002811	3/2-
29	Ne	-ve beta	18.0206	29.019346	?-
29	P	positron	-16.9519	28.981802	1/2+
29	S	positron	-3.1588	28.996609	5/2+
29	Si	4.67	-21.8951	28.976495	1/2+
30	Al	-ve beta	-15.8724	29.98296	3+
30	Ar	positron	20.083	30.02156	0+
30	Cl	proton	4.443	30.00477	?-
30	Mg	-ve beta	-8.8822	29.990465	0+
30	Na	-ve beta	8.5944	30.009226	2+
30	Ne	-ve beta	22.2366	30.023872	0+
30	P	positron	-20.2006	29.978314	1+
30	S	positron	-14.0628	29.984903	0+
30	Si	3.1	-24.4329	29.97377	0+
31	Al	-ve beta	-14.9542	30.983946	3/2+
31	Ar	positron	11.296	31.012127	?-
31	Cl	positron	-7.0645	30.992416	3/2-
31	Mg	-ve beta	-3.2151	30.996548	3/2-
31	Na	-ve beta	12.6638	31.013595	3/2+
31	Ne	neutron	30.842	31.03311	?-
31	P	100	-24.441	30.973762	1/2+

31	S	positron	-19.0449	30.979555	1/2+
31	Si	-ve beta	-22.949	30.975363	3/2+
32	Al	-ve beta	-11.0621	31.988124	1+
32	Ar	positron	-2.179	31.997661	0+
32	Cl	positron	-13.3307	31.985689	1+
32	K	proton	20.418	32.021919	?-
32	Mg	-ve beta	-0.7956	31.999146	0+
32	Na	-ve beta	18.3037	32.01965	3-
32	Ne	-ve beta	37.176	32.03991	0+
32	P	-ve beta	-24.3053	31.973907	1+
32	S	95	-26.0159	31.972071	0+
32	Si	-ve beta	-24.0809	31.974148	0+
33	Al	-ve beta	-8.5049	32.99087	5/2-
33	Ar	positron	-9.3814	32.989929	1/2+
33	Cl	positron	-21.0035	32.977452	3/2+
33	K	proton	6.763	33.00726	?-
33	Mg	-ve beta	5.2042	33.005587	7/2-
33	Na	-ve beta	25.5099	33.027386	5/2-
33	P	-ve beta	-26.3377	32.971726	1/2+
33	S	0.75	-26.5862	32.971459	3/2+
33	Si	-ve beta	-20.4924	32.978001	3/2-
34	Al	-ve beta	-2.8622	33.996927	6-
34	Ar	positron	-18.3783	33.98027	0+
34	Ca	positron	13.153	34.01412	0+
34	Cl	positron	-24.4396	33.973763	0+
34	K	proton	-1.481	33.99841	?-
34	Mg	-ve beta	8.4509	34.009072	0+
34	Na	-ve beta	32.509	34.0349	6-
34	P	-ve beta	-24.5576	33.973637	1+
34	S	4.21	-29.9318	33.967867	0+
34	Si	-ve beta	-19.9566	33.978576	0+
35	Al	-ve beta	-0.0581	34.999938	5/2-
35	Ar	positron	-23.0482	34.975257	3/2+
35	Ca	positron	4.439	35.004765	1/2-
35	Cl	75.8	-29.0135	34.968853	3/2+
35	K	positron	-11.1671	34.988012	3/2+
35	Mg	-ve beta	16.292	35.01749	?-
35	Na	neutron	41.153	35.044179	?-
35	P	-ve beta	-24.8576	34.973314	1/2+
35	S	-ve beta	-28.8463	34.969032	3/2+
35	Si	-ve beta	-14.3598	34.984584	7/2-
36	Al	-ve beta	5.9164	36.006351	0-
36	Ar	0.34	-30.2305	35.967546	0+
36	Ca	positron	-6.4392	35.993087	0+
36	Cl	-ve beta	-29.5219	35.968307	2+
36	K	positron	-17.4251	35.981294	2+
36	Mg	-ve beta	20.912	36.02245	0+
36	P	-ve beta	-20.2508	35.97826	4-
36	S	0.02	-30.664	35.967081	0+
36	Sc	proton	13.898	36.01492	?-
36	Si	-ve beta	-12.4006	35.986688	0+

37	Al	-ve beta	9.6037	37.01031	?-
37	Ar	electron capture	-30.948	36.966776	3/2+
37	Ca	positron	-13.1606	36.985872	3/2+
37	Cl	24.2	-31.7615	36.965903	3/2+
37	K	positron	-24.7993	36.973377	3/2+
37	P	-ve beta	-18.9947	36.979609	1/2-
37	S	-ve beta	-26.8962	36.971126	7/2-
37	Sc	proton	2.841	37.00305	?-
37	Si	-ve beta	-6.5242	36.992996	7/2-
38	Al	-ve beta	15.742	38.0169	?-
38	Ar	0.06	-34.7148	37.962732	0+
38	Ca	positron	-22.059	37.976319	0+
38	Cl	-ve beta	-29.798	37.968011	2-
38	K	positron	-28.8017	37.96908	3+
38	P	-ve beta	-14.4661	37.98447	4-
38	S	-ve beta	-26.8611	37.971164	0+
38	Sc	proton	-4.937	37.9947	?-
38	Si	-ve beta	-3.7446	37.99598	0+
38	Ti	positron	9.101	38.00977	0+
39	Ar	-ve beta	-33.2418	38.964314	7/2-
39	Ca	positron	-27.2763	38.970718	3/2+
39	Cl	-ve beta	-29.7998	38.968009	3/2+
39	K	93.3	-33.8068	38.963707	3/2+
39	P	-ve beta	-12.6497	38.98642	1/2-
39	S	-ve beta	-23.1613	38.975136	3/2-
39	Sc	proton	-14.168	38.98479	?-
39	Si	-ve beta	2.142	39.0023	?-
39	Ti	positron	1.232	39.001323	?-
40	Ar	99.6	-35.0399	39.962383	0+
40	Ca	96.9	-34.8461	39.962591	0+
40	Cl	-ve beta	-27.5577	39.970416	2-
40	K	0.01	-33.535	39.963999	4-
40	P	-ve beta	-8.3369	39.99105	4-
40	S	-ve beta	-22.8495	39.97547	0+
40	Sc	positron	-20.5264	39.977964	4-
40	Si	-ve beta	5.403	40.0058	0+
40	Ti	positron	-8.8502	39.990499	0+
40	V	proton	10.33	40.01109	?-
41	Ar	-ve beta	-33.0673	40.964501	7/2-
41	Ca	electron capture	-35.1375	40.962279	7/2-
41	Cl	-ve beta	-27.3391	40.970651	1/2+
41	K	6.73	-35.5589	40.961826	3/2+
41	P	-ve beta	-4.8438	40.9948	?-
41	S	-ve beta	-18.6019	40.98003	7/2-
41	Sc	positron	-28.6422	40.969252	7/2-
41	Si	-ve beta	11.83	41.0127	?-
41	Ti	positron	-15.713	40.983132	3/2+
41	V	proton	-0.242	40.99974	?-
42	Ar	-ve beta	-34.4221	41.963047	0+
42	Ca	0.65	-38.5468	41.958619	0+
42	Cl	-ve beta	-24.9873	41.973175	5-

42	Cr	positron	5.99	42.00643	0+
42	K	-ve beta	-35.0213	41.962403	2-
42	P	-ve beta	0.084	42.00009	?-
42	S	-ve beta	-17.242	41.98149	0+
42	Sc	positron	-32.1209	41.965517	0+
42	Ti	positron	-25.1209	41.973032	0+
42	V	proton	-8.169	41.99123	?-
43	Ar	-ve beta	-31.9776	42.965671	3/2-
43	Ca	0.14	-38.4084	42.958767	7/2-
43	Cl	-ve beta	-24.0294	42.974204	3/2-
43	Cr	positron	-2.136	42.997707	3/2+
43	K	-ve beta	-36.593	42.960716	3/2+
43	P	-ve beta	3.083	43.00331	?-
43	S	-ve beta	-12.482	42.9866	?-
43	Sc	positron	-36.1876	42.961151	7/2-
43	Ti	positron	-29.3203	42.968524	7/2-
43	V	positron	-18.024	42.980651	7/2-
44	Ar	-ve beta	-32.2621	43.965365	0+
44	Ca	2.09	-41.4691	43.955481	0+
44	Cl	-ve beta	-19.9911	43.978539	5-
44	Cr	positron	-13.535	43.98547	0+
44	K	-ve beta	-35.8102	43.961556	2-
44	Mn	proton	6.399	44.00687	?-
44	S	-ve beta	-10.88	43.98832	0+
44	Sc	positron	-37.8158	43.959403	2+
44	Ti	electron capture	-37.5483	43.959691	0+
44	V	positron	-23.846	43.9744	7-
45	Ar	-ve beta	-29.7194	44.968095	7/2-
45	Ca	-ve beta	-40.8125	44.956186	7/2-
45	Cl	-ve beta	-18.9093	44.9797	?-
45	Cr	positron	-19.412	44.979161	7/2-
45	Fe	neutron	13.563	45.01456	?-
45	K	-ve beta	-36.6081	44.9607	3/2+
45	Mn	proton	-5.114	44.99451	?-
45	S	-ve beta	-4.825	44.99482	?-
45	Sc	100	-41.0694	44.955911	7/2-
45	Ti	positron	-39.0069	44.958125	7/2-
45	V	positron	-31.8737	44.965782	7/2-
46	Ar	-ve beta	-29.7208	45.968094	0+
46	Ca	0	-43.135	45.953693	0+
46	Cl	-ve beta	-14.792	45.98412	?-
46	Cr	positron	-29.471	45.968362	0+
46	Fe	positron	0.755	46.000811	0+
46	K	-ve beta	-35.419	45.961976	2-
46	Mn	positron	-12.37	45.98672	4+
46	Sc	-ve beta	-41.7587	45.955171	4+
46	Ti	8.25	-44.1254	45.95263	0+
46	V	positron	-37.074	45.9602	0+
47	Ar	-ve beta	-25.9084	46.972186	3/2-
47	Ca	-ve beta	-42.3397	46.954547	7/2-
47	Cl	-ve beta	-11.225	46.98795	?-

47	Cr	positron	-34.5525	46.962907	3/2-
47	Fe	positron	-6.623	46.99289	?-
47	K	-ve beta	-35.697	46.961678	1/2+
47	Mn	positron	-22.263	46.9761	7/2-
47	Sc	-ve beta	-44.3317	46.952408	7/2-
47	Ti	7.44	-44.9318	46.951764	5/2-
47	V	positron	-42.004	46.954907	3/2-
48	Ar	-ve beta	-23.222	47.97507	0+
48	Ca	0.19	-44.2148	47.952534	0+
48	Co	proton	1.798	48.00193	?-
48	Cr	positron	-42.8154	47.954036	0+
48	Fe	positron	-18.108	47.98056	0+
48	K	-ve beta	-32.1246	47.965513	2-
48	Mn	positron	-29.286	47.96856	4+
48	Sc	-ve beta	-44.4929	47.952235	6+
48	Ti	73.7	-48.487	47.947947	0+
48	V	positron	-44.4747	47.952255	4+
49	Ar	-ve beta	-17.8132	48.980877	?-
49	Ca	-ve beta	-41.2901	48.955674	3/2-
49	Cl	-ve beta	-1.3823	48.998516	?-
49	Co	proton	-9.883	48.98939	?-
49	Cr	positron	-45.3256	48.951341	5/2-
49	Fe	positron	-24.582	48.97361	7/2-
49	K	-ve beta	-30.3201	48.96745	3/2+
49	Mn	positron	-37.6107	48.959624	5/2-
49	Sc	-ve beta	-46.5523	48.950024	7/2-
49	Ti	5.41	-48.5581	48.947871	7/2-
49	V	electron capture	-47.9562	48.948517	7/2-
50	Ar	-ve beta	-14.2278	49.984726	0+
50	Ca	-ve beta	-39.5715	49.957519	0+
50	Co	positron	-17.503	49.98121	0-
50	Cr	4.34	-50.2546	49.94605	0+
50	Fe	positron	-34.4716	49.962994	0+
50	K	-ve beta	-25.3527	49.972783	0-
50	Mn	positron	-42.6216	49.954244	0+
50	Ni	positron	-3.791	49.99593	0+
50	Sc	-ve beta	-44.5376	49.952187	5+
50	Ti	5.18	-51.4259	49.944792	0+
50	V	0.25	-49.2177	49.947163	6+
51	Ca	-ve beta	-35.9047	50.961455	3/2-
51	Co	positron	-27.47	50.97051	7/2-
51	Cr	electron capture	-51.4449	50.944772	7/2-
51	Fe	positron	-40.2174	50.956825	5/2-
51	K	-ve beta	-22.5108	50.975834	1/2+
51	Mn	positron	-48.2371	50.948216	5/2-
51	Ni	positron	-11.439	50.98772	?-
51	Sc	-ve beta	-43.2189	50.953603	7/2-
51	Ti	-ve beta	-49.7269	50.946616	3/2-
51	V	99.8	-52.1976	50.943964	7/2-
52	Ca	-ve beta	-32.5091	51.9651	0+
52	Co	positron	-34.316	51.963161	0-

52	Cr	83.8	-55.4131	51.940512	0+
52	Cu	proton	-2.627	51.99718	?-
52	Fe	positron	-48.3293	51.948117	0+
52	K	-ve beta	-16.5233	51.982262	?-
52	Mn	positron	-50.7013	51.94557	6+
52	Ni	positron	-22.654	51.97568	0+
52	Sc	-ve beta	-40.4559	51.956569	3+
52	Ti	-ve beta	-49.4641	51.946899	0+
52	V	-ve beta	-51.4375	51.94478	3+
53	Ca	-ve beta	-27.898	52.970051	3/2-
53	Co	positron	-42.6394	52.954225	7/2-
53	Cr	9.5	-55.281	52.940654	3/2-
53	Cu	proton	-13.46	52.98555	?-
53	Fe	positron	-50.9414	52.945313	7/2-
53	K	-ve beta	-12.3587	52.986732	3/2+
53	Mn	electron capture	-54.684	52.941295	7/2-
53	Ni	positron	-29.379	52.968461	7/2-
53	Sc	-ve beta	-37.968	52.95924	?-
53	Ti	-ve beta	-46.8249	52.949732	3/2-
53	V	-ve beta	-51.8449	52.944343	7/2-
54	Co	positron	-48.0055	53.948464	0+
54	Cr	2.37	-56.9287	53.938885	0+
54	Cu	proton	-21.694	53.976711	?-
54	Fe	5.84	-56.2485	53.939615	0+
54	K	-ve beta	-5.4878	53.994109	?-
54	Mn	-ve beta	-55.5516	53.940363	3+
54	Ni	positron	-39.2064	53.957911	0+
54	Sc	-ve beta	-33.9995	53.9635	?-
54	Ti	-ve beta	-45.6079	53.951038	0+
54	V	-ve beta	-49.8871	53.946444	3+
54	Zn	positron	-6.567	53.99295	0+
55	Co	positron	-54.0239	54.942003	7/2-
55	Cr	-ve beta	-55.1036	54.940844	3/2-
55	Cu	positron	-32.118	54.96552	3/2-
55	Fe	electron capture	-57.4751	54.938298	3/2-
55	Mn	100	-57.7067	54.93805	5/2-
55	Ni	positron	-45.3302	54.951336	7/2-
55	Sc	-ve beta	-30.301	54.967471	?-
55	Ti	-ve beta	-41.7062	54.955227	?-
55	V	-ve beta	-49.1476	54.947238	7/2-
55	Zn	positron	-14.923	54.98398	?-
56	Co	positron	-56.0353	55.939844	4+
56	Cr	-ve beta	-55.2889	55.940645	0+
56	Cu	positron	-38.601	55.95856	5-
56	Fe	91.8	-60.6013	55.934942	0+
56	Ga	proton	-4.741	55.99491	?-
56	Mn	-ve beta	-56.9059	55.938909	3+
56	Ni	positron	-53.8998	55.942137	0+
56	Ti	-ve beta	-39.1321	55.95799	0+
56	V	-ve beta	-46.1571	55.950449	6-
56	Zn	positron	-25.728	55.97238	0+

57	Co	electron capture	-59.34	56.936296	7/2-
57	Cr	-ve beta	-52.3929	56.943754	3/2-
57	Cu	positron	-47.3055	56.949216	3/2-
57	Fe	2.12	-60.176	56.935399	1/2-
57	Ga	proton	-16.413	56.98238	?-
57	Mn	-ve beta	-57.4852	56.938288	5/2-
57	Ni	positron	-56.0757	56.939801	3/2-
57	Ti	-ve beta	-34.046	56.96345	?-
57	V	-ve beta	-44.2772	56.952467	?-
57	Zn	positron	-32.686	56.96491	7/2-
58	Co	-ve beta	-59.8417	57.935758	2+
58	Cr	-ve beta	-51.8942	57.94429	0+
58	Cu	positron	-51.6602	57.944541	1+
58	Fe	0.28	-62.1492	57.933281	0+
58	Ga	proton	-23.986	57.97425	?-
58	Ge	proton	-8.374	57.99101	0+
58	Mn	-ve beta	-55.9024	57.939987	3+
58	Ni	68.1	-60.2233	57.935348	0+
58	V	-ve beta	-40.3151	57.95672	?-
58	Zn	positron	-42.2934	57.954597	0+
59	Co	100	-62.2239	58.9332	7/2-
59	Cr	-ve beta	-47.7728	58.948714	?-
59	Cu	positron	-56.3518	58.939504	3/2-
59	Fe	-ve beta	-60.6588	58.934881	3/2-
59	Ga	proton	-34.121	58.96337	?-
59	Ge	positron	-17	58.98175	?-
59	Mn	-ve beta	-55.4734	58.940447	3/2-
59	Ni	positron	-61.1514	58.934352	3/2-
59	V	-ve beta	-37.9118	58.9593	?-
59	Zn	positron	-47.2577	58.949267	3/2-
60	As	proton	-6.399	59.99313	?-
60	Co	-ve beta	-61.6445	59.933822	5+
60	Cr	-ve beta	-46.8262	59.94973	0+
60	Cu	positron	-58.3415	59.937368	2+
60	Fe	-ve beta	-61.4073	59.934077	0+
60	Ga	positron	-39.998	59.957061	?-
60	Ge	positron	-27.768	59.97019	0+
60	Mn	-ve beta	-52.7748	59.943344	0+
60	Ni	26.2	-64.4684	59.930791	0+
60	V	-ve beta	-33.068	59.9645	?-
60	Zn	positron	-54.1834	59.941832	0+
61	As	proton	-18.052	60.980621	?-
61	Co	-ve beta	-62.8954	60.93248	7/2-
61	Cr	-ve beta	-42.7649	60.95409	?-
61	Cu	positron	-61.98	60.933462	3/2-
61	Fe	-ve beta	-58.9178	60.93675	3/2-
61	Ga	positron	-47.348	60.94917	3/2-
61	Ge	positron	-33.729	60.963791	3/2-
61	Mn	-ve beta	-51.5704	60.944637	5/2-
61	Ni	1.14	-64.2171	60.931061	3/2-
61	Zn	positron	-56.3429	60.939514	3/2-

62	As	proton	-24.964	61.9732	?-
62	Co	-ve beta	-61.4284	61.934054	2+
62	Cr	-ve beta	-41.172	61.9558	0+
62	Cu	positron	-62.7948	61.932588	1+
62	Fe	-ve beta	-58.8982	61.936771	0+
62	Ga	positron	-51.9968	61.94418	0+
62	Ge	positron	-42.243	61.954651	0+
62	Mn	-ve beta	-48.4656	61.94797	3+
62	Ni	3.63	-66.743	61.928349	0+
62	Zn	positron	-61.1678	61.934334	0+
63	As	proton	-33.823	62.96369	?-
63	Co	-ve beta	-61.8373	62.933615	7/2-
63	Cu	69.2	-65.5765	62.929601	3/2-
63	Fe	-ve beta	-55.5131	62.940405	5/2-
63	Ga	positron	-56.6897	62.939142	3/2-
63	Ge	positron	-46.91	62.94964	3/2-
63	Mn	-ve beta	-46.7517	62.94981	?-
63	Ni	-ve beta	-65.5095	62.929673	1/2-
63	Zn	positron	-62.2097	62.933216	3/2-
64	As	positron	-39.654	63.95743	?-
64	Co	-ve beta	-59.7896	63.935814	1+
64	Cu	-ve beta	-65.4211	63.929768	1+
64	Fe	-ve beta	-54.9015	63.941061	0+
64	Ga	positron	-58.8352	63.936838	0+
64	Ge	positron	-54.4252	63.941573	0+
64	Mn	-ve beta	-43.1002	63.95373	?-
64	Ni	0.93	-67.0962	63.92797	0+
64	Zn	48.6	-66	63.929147	0+
65	As	proton	-47.056	64.949484	?-
65	Co	-ve beta	-59.1645	64.936485	7/2-
65	Cu	30.8	-67.2596	64.927794	3/2-
65	Fe	-ve beta	-51.2881	64.94494	?-
65	Ga	positron	-62.6533	64.932739	3/2-
65	Ge	positron	-56.411	64.939441	3/2-
65	Mn	-ve beta	-40.8926	64.9561	?-
65	Ni	-ve beta	-65.1229	64.930088	5/2-
65	Se	positron	-32.919	64.96466	?-
65	Zn	positron	-65.9082	64.929245	5/2-
66	As	positron	-51.822	65.944367	?-
66	Co	-ve beta	-56.0523	65.939826	3+
66	Cu	-ve beta	-66.2542	65.928874	1+
66	Fe	-ve beta	-50.3193	65.94598	0+
66	Ga	positron	-63.7216	65.931593	0+
66	Ge	positron	-61.6216	65.933847	0+
66	Ni	-ve beta	-66.0289	65.929116	0+
66	Se	positron	-41.722	65.95521	0+
66	Zn	27.9	-68.8966	65.926037	0+
67	As	positron	-56.6442	66.93919	5/2-
67	Co	-ve beta	-55.3214	66.940611	7/2-
67	Cu	-ve beta	-67.3004	66.927751	3/2-
67	Fe	-ve beta	-46.5747	66.95	?-

67	Ga	electron capture	-66.877	66.928205	3/2-
67	Ge	positron	-62.6542	66.932738	1/2-
67	Ni	-ve beta	-63.7427	66.93157	1/2-
67	Se	positron	-46.491	66.95009	5/2-
67	Zn	4.1	-67.8774	66.927131	5/2-
68	As	positron	-58.8773	67.936793	3-
68	Br	proton	-38.892	67.958248	?-
68	Co	-ve beta	-51.8283	67.94436	?-
68	Cu	-ve beta	-65.5422	67.929638	1+
68	Fe	-ve beta	-44.237	67.95251	0+
68	Ga	positron	-67.0832	67.927984	1+
68	Ge	electron capture	-66.9773	67.928097	0+
68	Ni	-ve beta	-63.4862	67.931845	0+
68	Se	positron	-54.148	67.94187	0+
68	Zn	18.8	-70.0043	67.924848	0+
69	As	positron	-63.0809	68.93228	5/2-
69	Br	proton	-46.679	68.949888	?-
69	Co	-ve beta	-51.0459	68.9452	?-
69	Cu	-ve beta	-65.7402	68.929426	3/2-
69	Ga	60.1	-69.3212	68.925581	3/2-
69	Ge	positron	-67.0939	68.927972	5/2-
69	Ni	-ve beta	-60.378	68.935182	9/2-
69	Se	positron	-56.2978	68.939562	3/2-
69	Zn	-ve beta	-68.4152	68.926554	1/2-
70	As	positron	-64.3407	69.930928	4+
70	Br	positron	-51.591	69.944615	0-
70	Co	-ve beta	-46.752	69.94981	?-
70	Cu	-ve beta	-62.9606	69.93241	1+
70	Ga	-ve beta	-68.9049	69.926028	1+
70	Ge	21.2	-70.5607	69.924251	0+
70	Kr	positron	-40.976	69.956011	0+
70	Ni	-ve beta	-59.4852	69.936141	0+
70	Se	positron	-61.941	69.933504	0+
70	Zn	0.6	-69.5597	69.925325	0+
71	As	positron	-67.8925	70.927115	5/2-
71	Br	positron	-56.593	70.939245	5/2-
71	Co	-ve beta	-44.963	70.951731	?-
71	Cu	-ve beta	-62.7645	70.93262	3/2-
71	Ga	39.9	-70.1346	70.924708	3/2-
71	Ge	electron capture	-69.9052	70.924954	1/2-
71	Kr	positron	-46.1	70.95051	5/2-
71	Ni	-ve beta	-55.8896	70.940001	?-
71	Se	positron	-63.093	70.932267	5/2-
71	Zn	-ve beta	-67.3219	70.927728	1/2-
72	As	positron	-68.2293	71.926753	2-
72	Br	positron	-59.1798	71.936468	3+
72	Cu	-ve beta	-59.904	71.935691	1+
72	Ga	-ve beta	-68.5843	71.926372	3-
72	Ge	27.7	-72.5854	71.922077	0+
72	Kr	positron	-54.1398	71.941879	0+
72	Ni	-ve beta	-54.6787	71.9413	0+

72	Rb	proton	-38.117	71.95908	?-
72	Se	electron capture	-67.8943	71.927113	0+
72	Zn	-ve beta	-68.1262	71.926864	0+
73	As	electron capture	-70.9561	72.923826	3/2-
73	Br	positron	-63.5597	72.931766	1/2-
73	Cu	-ve beta	-59.159	72.936491	?-
73	Ga	-ve beta	-69.7037	72.925171	3/2-
73	Ge	7.73	-71.297	72.92346	9/2+
73	Kr	positron	-56.8851	72.938932	5/2-
73	Ni	-ve beta	-50.329	72.94597	?-
73	Rb	proton	-46.261	72.950337	5/2-
73	Se	positron	-68.2161	72.926768	9/2+
73	Zn	-ve beta	-65.4099	72.92978	1/2-
74	As	-ve beta	-70.8595	73.92393	2-
74	Br	positron	-65.3058	73.929892	0-
74	Cu	-ve beta	-55.824	73.940071	1+
74	Ga	-ve beta	-68.0539	73.926942	3-
74	Ge	35.9	-73.4219	73.921179	0+
74	Kr	positron	-62.1681	73.93326	0+
74	Ni	-ve beta	-48.726	73.947691	0+
74	Rb	positron	-51.7236	73.944473	0+
74	Se	0.89	-72.2125	73.922477	0+
74	Zn	-ve beta	-65.7091	73.929459	0+
75	As	100	-73.0323	74.921597	3/2-
75	Br	positron	-69.1387	74.925777	3/2-
75	Cu	-ve beta	-54.576	74.941411	?-
75	Ga	-ve beta	-68.4641	74.926501	3/2-
75	Ge	-ve beta	-71.8558	74.92286	1/2-
75	Kr	positron	-64.2401	74.931036	5/2+
75	Ni	-ve beta	-44.162	74.952591	?-
75	Rb	positron	-57.2199	74.938572	3/2-
75	Se	electron capture	-72.1687	74.922524	5/2+
75	Sr	positron	-46.649	74.949921	?-
75	Zn	-ve beta	-62.4683	74.932938	7/2+
76	As	-ve beta	-72.2894	75.922395	2-
76	Br	positron	-70.2885	75.924543	1-
76	Ga	-ve beta	-66.2027	75.928929	2+
76	Ge	7.44	-73.2127	75.921404	0+
76	Kr	positron	-68.9772	75.925951	0+
76	Ni	-ve beta	-42.178	75.95472	0+
76	Rb	positron	-60.4768	75.935076	1-
76	Se	9.36	-75.2514	75.919215	0+
76	Sr	positron	-54.39	75.94161	0+
76	Zn	-ve beta	-62.0427	75.933395	0+
77	As	-ve beta	-73.916	76.920649	3/2-
77	Br	positron	-73.2338	76.921381	3/2-
77	Cu	-ve beta	-49.108	76.947281	?-
77	Ga	-ve beta	-65.874	76.929282	3/2-
77	Ge	-ve beta	-71.214	76.923549	7/2+
77	Kr	positron	-70.1701	76.92467	5/2+
77	Ni	-ve beta	-37.204	76.96006	?-

77	Rb	positron	-64.8256	76.930407	3/2-
77	Se	7.63	-74.5989	76.919915	1/2-
77	Sr	positron	-57.9733	76.937764	5/2+
77	Y	proton	-46.929	76.94962	?-
77	Zn	-ve beta	-58.604	76.937087	7/2+
78	As	-ve beta	-72.816	77.921829	2-
78	Br	-ve beta	-73.4518	77.921147	1+
78	Cu	-ve beta	-44.861	77.95184	?-
78	Ga	-ve beta	-63.6619	77.931657	3+
78	Ge	-ve beta	-71.8619	77.922854	0+
78	Kr	0.35	-74.1582	77.920389	0+
78	Ni	-ve beta	-34.745	77.9627	0+
78	Rb	positron	-66.9338	77.928144	0+
78	Se	23.8	-77.0255	77.91731	0+
78	Sr	positron	-63.1716	77.932183	0+
78	Y	positron	-52.629	77.943501	?-
78	Zn	-ve beta	-57.2219	77.93857	0+
79	As	-ve beta	-73.6358	78.920949	3/2-
79	Br	50.7	-76.0678	78.918339	3/2-
79	Cu	-ve beta	-42.709	78.95415	?-
79	Ga	-ve beta	-62.4878	78.932917	3/2-
79	Ge	-ve beta	-69.4878	78.925402	1/2-
79	Kr	positron	-74.442	78.920084	1/2-
79	Rb	positron	-70.7927	78.924002	5/2+
79	Se	-ve beta	-75.9171	78.9185	7/2+
79	Sr	positron	-65.4745	78.929711	3/2-
79	Y	positron	-58.3545	78.937354	5/2+
79	Zn	-ve beta	-53.398	78.942675	9/2+
80	As	-ve beta	-72.1177	79.922579	1+
80	Br	-ve beta	-75.8886	79.918531	1+
80	Ga	-ve beta	-59.0675	79.936589	3-
80	Ge	-ve beta	-69.4475	79.925446	0+
80	Kr	2.25	-77.8929	79.916379	0+
80	Rb	positron	-72.17	79.922523	1+
80	Se	49.6	-77.7592	79.916523	0+
80	Sr	positron	-70.302	79.924528	0+
80	Y	positron	-61.162	79.93434	3-
80	Zn	-ve beta	-51.7771	79.944415	0+
80	Zr	positron	-55.34	79.940591	0+
81	As	-ve beta	-72.5325	80.922134	3/2-
81	Br	49.3	-77.974	80.916292	3/2-
81	Ga	-ve beta	-57.9825	80.937754	5/2-
81	Ge	-ve beta	-66.3025	80.928822	9/2+
81	Kr	electron capture	-77.6933	80.916593	7/2+
81	Rb	positron	-75.4553	80.918996	3/2-
81	Se	-ve beta	-76.3889	80.917994	1/2-
81	Sr	positron	-71.5237	80.923217	1/2-
81	Y	positron	-66.0133	80.929132	5/2+
81	Zn	-ve beta	-46.128	80.95048	?-
81	Zr	positron	-58.8533	80.936819	9/2-
82	As	-ve beta	-70.2386	81.924596	1+

82	Br	-ve beta	-77.4956	81.916806	5-
82	Ga	-ve beta	-52.946	81.943161	1-
82	Ge	-ve beta	-65.5386	81.929642	0+
82	Kr	11.6	-80.5882	81.913486	0+
82	Nb	positron	-52.974	81.943131	?-
82	Rb	positron	-76.1868	81.918211	1+
82	Se	8.73	-77.5932	81.916701	0+
82	Sr	electron capture	-76.0065	81.918404	0+
82	Y	positron	-68.1905	81.926795	1+
82	Zn	-ve beta	-42.066	81.954841	0+
82	Zr	positron	-64.1905	81.931089	0+
83	As	-ve beta	-69.8798	82.924982	5/2-
83	Br	-ve beta	-79.0083	82.915182	3/2-
83	Ga	-ve beta	-49.49	82.946871	?-
83	Ge	-ve beta	-61.004	82.93451	5/2+
83	Kr	11.5	-79.9806	82.914138	9/2+
83	Nb	positron	-58.9612	82.936703	5/2+
83	Rb	electron capture	-79.071	82.915114	5/2-
83	Se	-ve beta	-75.3398	82.91912	9/2+
83	Sr	positron	-76.7953	82.917558	7/2+
83	Y	positron	-72.3293	82.922352	9/2+
83	Zr	positron	-66.4612	82.928652	1/2-
84	As	-ve beta	-66.08	83.929061	3-
84	Br	-ve beta	-77.7753	83.916505	2-
84	Ga	-ve beta	-44.395	83.95234	?-
84	Ge	-ve beta	-58.395	83.937311	0+
84	Kr	57	-82.4297	83.911509	0+
84	Mo	positron	-55.806	83.94009	0+
84	Nb	positron	-61.879	83.933571	3+
84	Rb	-ve beta	-79.7484	83.914387	2-
84	Se	-ve beta	-75.9495	83.918466	0+
84	Sr	0.56	-80.6427	83.913427	0+
84	Y	positron	-74.2327	83.920309	1+
84	Zr	positron	-71.492	83.923251	0+
85	As	-ve beta	-63.519	84.93181	3/2-
85	Br	-ve beta	-78.6078	84.915612	3/2-
85	Ge	-ve beta	-53.384	84.94269	?-
85	Kr	-ve beta	-81.4778	84.912531	9/2+
85	Mo	positron	-59.066	84.936591	?-
85	Nb	positron	-67.1524	84.92791	9/2+
85	Rb	72.2	-82.1648	84.911793	5/2-
85	Se	-ve beta	-72.4258	84.922248	5/2+
85	Sr	positron	-81.1	84.912936	9/2+
85	Y	positron	-77.8454	84.91643	1/2-
85	Zr	positron	-73.1524	84.921468	7/2+
86	As	-ve beta	-59.401	85.936231	1-
86	Br	-ve beta	-75.6355	85.918803	2-
86	Ge	-ve beta	-50.049	85.946271	0+
86	Kr	17.3	-83.2615	85.910616	0+
86	Mo	positron	-65.018	85.930201	0+
86	Nb	positron	-69.8284	85.925037	5+

86	Rb	-ve beta	-82.7447	85.911171	2-
86	Se	-ve beta	-70.5365	85.924277	0+
86	Sr	9.86	-84.5194	85.909265	0+
86	Tc	positron	-53.132	85.942961	?-
86	Y	positron	-79.2794	85.914891	4-
86	Zr	positron	-77.8064	85.916472	0+
87	As	-ve beta	-56.281	86.93958	3/2-
87	Br	-ve beta	-73.8531	86.920716	3/2-
87	Kr	-ve beta	-80.7056	86.91336	5/2+
87	Mo	positron	-67.6939	86.927328	7/2+
87	Nb	positron	-74.1802	86.920365	1/2-
87	Rb	27.8	-84.5929	86.909187	3/2-
87	Se	-ve beta	-66.5781	86.928526	5/2+
87	Sr	7	-84.8762	86.908882	9/2+
87	Tc	positron	-59.122	86.93653	?-
87	Y	positron	-83.0146	86.910881	1/2-
87	Zr	positron	-79.3492	86.914816	9/2+
88	As	-ve beta	-51.642	87.94456	?-
88	Br	-ve beta	-70.7277	87.924071	1-
88	Kr	-ve beta	-79.6877	87.914452	0+
88	Mo	positron	-72.7014	87.921952	0+
88	Nb	positron	-76.425	87.917955	8+
88	Rb	-ve beta	-82.6016	87.911324	2-
88	Se	-ve beta	-63.8737	87.931429	0+
88	Sr	82.6	-87.9175	87.905617	0+
88	Tc	positron	-62.568	87.932831	6+
88	Y	positron	-84.2949	87.909506	4-
88	Zr	electron capture	-83.6251	87.910225	0+
89	Br	-ve beta	-68.5625	88.926396	3/2-
89	Kr	-ve beta	-76.7175	88.917641	3/2+
89	Mo	positron	-75.0042	88.91948	9/2+
89	Nb	positron	-80.5793	88.913495	1/2-
89	Rb	-ve beta	-81.7034	88.912289	3/2-
89	Ru	positron	-59.513	88.936111	?-
89	Se	-ve beta	-59.597	88.936021	5/2+
89	Sr	-ve beta	-86.2049	88.907456	5/2+
89	Tc	positron	-67.4942	88.927543	9/2+
89	Y	100	-87.7015	88.905849	1/2-
89	Zr	positron	-84.8692	88.90889	9/2+
90	Br	-ve beta	-64.6095	89.930639	2-
90	Kr	-ve beta	-74.9595	89.919528	0+
90	Mo	positron	-80.1693	89.913935	0+
90	Nb	positron	-82.6583	89.911263	8+
90	Rb	-ve beta	-79.3513	89.914814	0-
90	Ru	positron	-65.409	89.929781	0+
90	Se	-ve beta	-56.43	89.93942	0+
90	Sr	-ve beta	-85.9411	89.907739	0+
90	Tc	positron	-71.029	89.923748	1+
90	Y	-ve beta	-86.4873	89.907153	2-
90	Zr	51.5	-88.7693	89.904703	0+
91	Br	-ve beta	-61.5511	90.933923	?-

91	Kr	-ve beta	-71.3531	90.9234	5/2+
91	Mo	positron	-82.2054	90.91175	9/2+
91	Nb	positron	-86.6392	90.90699	9/2+
91	Rb	-ve beta	-77.7881	90.916492	3/2-
91	Ru	positron	-68.5803	90.926377	9/2+
91	Se	-ve beta	-50.888	90.94537	?-
91	Sr	-ve beta	-83.6492	90.9102	5/2+
91	Tc	positron	-75.9854	90.918427	9/2+
91	Y	-ve beta	-86.3485	90.907302	1/2-
91	Zr	11.2	-87.8926	90.905644	5/2+
92	Br	-ve beta	-56.6225	91.939214	2-
92	Kr	-ve beta	-68.8275	91.926111	0+
92	Mo	14.8	-86.8064	91.90681	0+
92	Nb	-ve beta	-86.4503	91.907193	7+
92	Rb	-ve beta	-74.8145	91.919684	0-
92	Rh	positron	-63.36	91.931981	?-
92	Ru	positron	-74.408	91.92012	0+
92	Sr	-ve beta	-82.9197	91.910983	0+
92	Tc	positron	-78.936	91.915259	8+
92	Y	-ve beta	-84.8307	91.908931	2-
92	Zr	17.1	-88.456	91.905039	0+
93	Br	-ve beta	-53.002	92.9431	5/2-
93	Kr	-ve beta	-64.102	92.931184	1/2+
93	Mo	electron capture	-86.8047	92.906812	5/2+
93	Nb	100	-87.21	92.906377	9/2+
93	Pd	positron	-59.0503	92.936607	?-
93	Rb	-ve beta	-72.702	92.921952	5/2-
93	Rh	positron	-69.173	92.92574	9/2-
93	Ru	positron	-77.2669	92.917051	9/2+
93	Sr	-ve beta	-80.1619	92.913943	5/2+
93	Tc	positron	-83.6039	92.910248	9/2+
93	Y	-ve beta	-84.2449	92.90956	1/2-
93	Zr	-ve beta	-87.1188	92.906475	5/2+
94	Br	-ve beta	-48.8237	93.947586	?-
94	Kr	-ve beta	-61.22	93.934278	0+
94	Mo	9.25	-88.4112	93.905087	0+
94	Nb	-ve beta	-86.3661	93.907283	6+
94	Pd	electron capture	-66.35	93.928771	0+
94	Rb	-ve beta	-68.5303	93.92643	3-
94	Ru	positron	-82.5625	93.911366	0+
94	Sr	-ve beta	-78.837	93.915366	0+
94	Tc	positron	-84.1554	93.909656	7+
94	Y	-ve beta	-82.3483	93.911596	2-
94	Zr	17.4	-87.2676	93.906315	0+
95	Kr	-ve beta	-56.141	94.939731	?-
95	Mo	15.9	-87.7089	94.905841	5/2+
95	Nb	-ve beta	-86.7833	94.906835	9/2+
95	Pd	positron	-70.151	94.92469	21/2
95	Rb	-ve beta	-65.8629	94.929294	5/2-
95	Rh	positron	-78.3351	94.915904	9/2+
95	Ru	positron	-83.4451	94.910419	5/2+

95	Sr	-ve beta	-75.1589	94.919314	1/2+
95	Tc	positron	-86.0175	94.907657	9/2+
95	Y	-ve beta	-81.2391	94.912787	1/2-
95	Zr	-ve beta	-85.6589	94.908042	5/2+
96	Ag	positron	-64.571	95.930681	8+
96	Kr	-ve beta	-53.263	95.94282	0+
96	Mo	16.7	-88.7919	95.904679	0+
96	Nb	-ve beta	-85.6051	95.9081	6+
96	Pd	positron	-76.1703	95.918228	0+
96	Rb	-ve beta	-61.2269	95.934271	2+
96	Rh	positron	-79.6203	95.914525	6+
96	Ru	5.52	-86.0667	95.907604	0+
96	Sr	-ve beta	-72.9834	95.92165	0+
96	Tc	-ve beta	-85.8186	95.907871	7+
96	Y	-ve beta	-78.3546	95.915884	0-
96	Zr	2.8	-85.4415	95.908276	0+
97	Ag	positron	-70.794	96.924	9/2+
97	Mo	9.55	-87.5417	96.906021	5/2+
97	Nb	-ve beta	-85.6078	96.908097	9/2+
97	Pd	positron	-77.7939	96.916485	5/2+
97	Rb	-ve beta	-58.3752	96.937332	3/2+
97	Rh	positron	-82.5839	96.911343	9/2+
97	Ru	positron	-86.1069	96.907561	5/2+
97	Sr	-ve beta	-68.7952	96.926146	1/2+
97	Tc	electron capture	-87.2214	96.906365	9/2+
97	Y	-ve beta	-76.262	96.91813	1/2-
97	Zr	-ve beta	-82.9498	96.91095	1/2+
98	Ag	positron	-72.8746	97.921767	5+
98	Cd	positron	-67.455	97.927585	0+
98	Mo	24.1	-88.1129	97.905408	0+
98	Nb	-ve beta	-83.5273	97.91033	1+
98	Pd	positron	-81.2946	97.912727	0+
98	Rb	-ve beta	-54.2658	97.941744	1-
98	Rh	positron	-83.1672	97.910717	2+
98	Ru	1.88	-88.2246	97.905288	0+
98	Sr	-ve beta	-66.6098	97.928492	0+
98	Tc	-ve beta	-86.4288	97.907216	6+
98	Y	-ve beta	-72.4358	97.922238	0-
98	Zr	-ve beta	-81.2661	97.912758	0+
99	Ag	positron	-76.7194	98.917639	9/2+
99	Cd	positron	-69.853	98.92501	5/2+
99	In	positron	-60.91	98.934611	?-
99	Mo	-ve beta	-85.9669	98.907711	1/2+
99	Nb	-ve beta	-82.3283	98.911618	9/2+
99	Pd	positron	-82.1494	98.91181	5/2+
99	Rb	-ve beta	-50.9262	98.945329	5/2+
99	Rh	positron	-85.5147	98.908197	1/2-
99	Ru	12.7	-87.6177	98.905939	5/2+
99	Sr	-ve beta	-62.1733	98.933255	3/2+
99	Tc	-ve beta	-87.3242	98.906254	9/2+
99	Y	-ve beta	-70.204	98.924634	5/2+

99	Zr	-ve beta	-77.7708	98.91651	1/2+
100	Ag	positron	-78.1531	99.9161	5+
100	Cd	positron	-74.2631	99.920276	0+
100	In	positron	-63.733	99.93158	7-
100	Mo	9.63	-86.1851	99.907477	0+
100	Nb	-ve beta	-79.9401	99.914181	1+
100	Pd	electron capture	-85.2266	99.908506	0+
100	Rb	-ve beta	-46.696	99.94987	?-
100	Rh	positron	-85.5895	99.908117	1-
100	Ru	12.6	-89.2195	99.90422	0+
100	Sn	positron	-56.463	99.939385	0+
100	Sr	-ve beta	-60.2201	99.935352	0+
100	Tc	-ve beta	-86.0172	99.907657	1+
100	Y	-ve beta	-67.2951	99.927756	1-
100	Zr	-ve beta	-76.6051	99.917762	0+
101	Ag	positron	-81.2249	100.912802	9/2+
101	Cd	positron	-75.7483	100.918682	5/2+
101	In	positron	-68.409	100.926561	9/2-
101	Mo	-ve beta	-83.5123	100.910347	1/2+
101	Nb	-ve beta	-78.9433	100.915252	5/2+
101	Pd	positron	-85.4287	100.908289	5/2+
101	Rb	-ve beta	-43.5983	100.953196	?-
101	Rh	electron capture	-87.4087	100.906164	1/2-
101	Ru	17	-87.9503	100.905582	5/2+
101	Sn	positron	-59.56	100.93606	?-
101	Sr	-ve beta	-55.4083	100.940517	5/2-
101	Tc	-ve beta	-86.3367	100.907314	9/2+
101	Y	-ve beta	-64.9133	100.930313	5/2+
101	Zr	-ve beta	-73.4583	100.92114	3/2+
102	Ag	positron	-82.0032	101.911967	5+
102	Cd	positron	-79.4161	101.914744	0+
102	In	positron	-70.5159	101.924299	5-
102	Mo	-ve beta	-83.5583	101.910297	0+
102	Nb	-ve beta	-76.35	101.918036	1+
102	Pd	1.02	-87.9264	101.905608	0+
102	Rh	-ve beta	-86.7759	101.906843	1-
102	Ru	31.6	-89.0985	101.90435	0+
102	Sn	positron	-64.748	101.930491	0+
102	Sr	-ve beta	-53.0783	101.943019	0+
102	Tc	-ve beta	-84.5682	101.909213	1+
102	Y	-ve beta	-61.8933	101.933555	0-
102	Zr	-ve beta	-71.7433	101.922981	0+
103	Ag	positron	-84.7918	102.908973	7/2+
103	Cd	positron	-80.6499	102.913419	5/2+
103	In	positron	-74.5999	102.919914	9/2+
103	Mo	-ve beta	-80.85	102.913205	3/2+
103	Nb	-ve beta	-75.32	102.919141	5/2+
103	Pd	electron capture	-87.4798	102.906087	5/2+
103	Rh	100	-88.0229	102.905504	1/2-
103	Ru	-ve beta	-87.2596	102.906324	3/2+
103	Sn	positron	-66.946	102.928131	5/2-

103	Tc	-ve beta	-84.6	102.909179	5/2+
103	Y	-ve beta	-58.591	102.9371	?-
103	Zr	-ve beta	-68.375	102.926597	5/2-
104	Ag	positron	-85.1129	103.908628	5+
104	Cd	positron	-83.976	103.909849	0+
104	In	positron	-76.0673	103.918339	6+
104	Mo	-ve beta	-80.3341	103.913758	0+
104	Nb	-ve beta	-72.2291	103.922459	1+
104	Pd	11.1	-89.3916	103.904035	0+
104	Rh	-ve beta	-86.9506	103.906655	1+
104	Ru	18.7	-88.0918	103.90543	0+
104	Sb	proton	-59.029	103.93663	6-
104	Sn	positron	-71.5523	103.923186	0+
104	Tc	-ve beta	-82.4891	103.911445	3+
104	Y	-ve beta	-54.912	103.94105	?-
104	Zr	-ve beta	-66.341	103.928781	0+
105	Ag	positron	-87.0687	104.906529	1/2-
105	Cd	positron	-84.33	104.909469	5/2+
105	In	positron	-79.481	104.914674	9/2+
105	Mo	-ve beta	-77.3406	104.916972	3/2+
105	Nb	-ve beta	-70.8556	104.923934	5/2+
105	Pd	22.3	-88.4143	104.905084	5/2+
105	Rh	-ve beta	-87.8476	104.905692	7/2+
105	Ru	-ve beta	-85.9306	104.90775	3/2+
105	Sb	proton	-63.91	104.93139	7/2-
105	Sn	positron	-73.2329	104.921382	5/2-
105	Tc	-ve beta	-82.2906	104.911658	5/2+
105	Zr	-ve beta	-62.364	104.93305	?-
106	Ag	-ve beta	-86.9392	105.906668	1+
106	Cd	1.25	-87.1338	105.906459	0+
106	In	positron	-80.6125	105.91346	7+
106	Mo	-ve beta	-76.257	105.918135	0+
106	Nb	-ve beta	-66.984	105.92809	10-
106	Pd	27.3	-89.9045	105.903484	0+
106	Rh	-ve beta	-86.3634	105.907286	1+
106	Ru	-ve beta	-86.324	105.907328	0+
106	Sb	positron	-66.353	105.928768	6-
106	Sn	positron	-77.4281	105.916878	0+
106	Tc	-ve beta	-79.777	105.914357	1-
106	Te	positron	-58	105.937735	0+
106	Zr	-ve beta	-60.184	105.93539	0+
107	Ag	51.8	-88.4052	106.905094	1/2-
107	Cd	positron	-86.9882	106.906615	5/2+
107	In	positron	-83.5622	106.910293	9/2+
107	Mo	-ve beta	-72.9406	106.921696	11/2-
107	Nb	-ve beta	-65.037	106.93018	?-
107	Pd	-ve beta	-88.3722	106.905129	5/2+
107	Rh	-ve beta	-86.861	106.906752	7/2+
107	Ru	-ve beta	-83.9206	106.909908	5/2+
107	Sb	positron	-70.654	106.92415	7/2-
107	Sn	positron	-78.5625	106.91566	5/2+

107	Tc	-ve beta	-79.1006	106.915083	9/2-
107	Te	positron	-60.519	106.935031	5/2-
108	Ag	-ve beta	-87.6034	107.905955	1+
108	Cd	0.89	-89.2529	107.904184	0+
108	I	proton	-52.569	107.943565	?-
108	In	positron	-84.1053	107.90971	7+
108	Mo	-ve beta	-71.3	107.923457	0+
108	Nb	-ve beta	-60.994	107.934521	?-
108	Pd	26.5	-89.5214	107.903896	0+
108	Rh	-ve beta	-85.0164	107.908732	1+
108	Ru	-ve beta	-83.6551	107.910193	0+
108	Sb	positron	-72.507	107.922161	4+
108	Sn	positron	-82.0132	107.911956	0+
108	Tc	-ve beta	-75.9351	107.918481	2+
108	Te	positron	-65.6857	107.929484	0+
109	Ag	48.2	-88.7193	108.904757	1/2-
109	Cd	electron capture	-88.5055	108.904986	5/2+
109	I	proton	-57.5764	108.93819	7/2-
109	In	positron	-86.4852	108.907155	9/2+
109	Mo	-ve beta	-67.356	108.927691	?-
109	Pd	-ve beta	-87.6034	108.905955	5/2+
109	Rh	-ve beta	-85.012	108.908737	7/2+
109	Ru	-ve beta	-80.852	108.913203	5/2+
109	Sb	positron	-76.2548	108.918138	5/2+
109	Sn	positron	-82.6348	108.911289	5/2+
109	Tc	-ve beta	-74.867	108.919628	9/2-
109	Te	positron	-67.5824	108.927448	7/2-
110	Ag	-ve beta	-87.4572	109.906112	1+
110	Cd	12.5	-90.3493	109.903007	0+
110	I	positron	-60.347	109.935215	7-
110	In	positron	-86.4714	109.90717	7+
110	Mo	-ve beta	-65.67	109.929501	0+
110	Pd	11.7	-88.3497	109.905153	0+
110	Rh	-ve beta	-82.9497	109.910951	1+
110	Ru	-ve beta	-80.1397	109.913967	0+
110	Sb	positron	-77.534	109.916765	3+
110	Sn	electron capture	-85.8337	109.907854	0+
110	Tc	-ve beta	-71.362	109.92339	10-
110	Te	positron	-72.28	109.922405	0+
110	Xe	positron	-51.689	109.94451	0+
111	Ag	-ve beta	-88.217	110.905296	1/2-
111	Cd	12.8	-89.2538	110.904183	1/2+
111	I	proton	-64.951	110.930273	5/2+
111	In	electron capture	-88.3879	110.905112	9/2+
111	Pd	-ve beta	-86.029	110.907645	5/2+
111	Rh	-ve beta	-82.288	110.911661	7/2+
111	Ru	-ve beta	-76.792	110.917561	11/2-
111	Sb	positron	-80.843	110.913212	5/2+
111	Sn	positron	-85.943	110.907737	7/2+
111	Tc	-ve beta	-69.815	110.925051	?-
111	Te	positron	-73.4748	110.921122	7/2-

111	Xe	positron	-54.381	110.94162	7/2-
112	Ag	-ve beta	-86.6247	111.907005	2-
112	Cd	24.1	-90.5806	111.902759	0+
112	Cs	proton	-46.292	111.950304	?-
112	I	positron	-67.096	111.92797	7-
112	In	-ve beta	-87.9944	111.905535	1+
112	Pd	-ve beta	-86.3368	111.907314	0+
112	Rh	-ve beta	-79.5	111.914654	1+
112	Ru	-ve beta	-75.867	111.918554	0+
112	Sb	positron	-81.6029	111.912396	3+
112	Sn	0.97	-88.6579	111.904823	0+
112	Tc	-ve beta	-65.913	111.92924	?-
112	Te	positron	-77.2591	111.91706	0+
112	Xe	positron	-59.9437	111.935648	0+
113	Ag	-ve beta	-87.0331	112.906567	1/2-
113	Cd	12.2	-89.0495	112.904402	1/2+
113	Cs	proton	-51.6772	112.944523	?-
113	I	positron	-71.124	112.923646	5/2+
113	In	4.29	-89.3654	112.904063	9/2+
113	Pd	-ve beta	-83.6931	112.910152	5/2+
113	Rh	-ve beta	-78.786	112.91542	9/2-
113	Ru	-ve beta	-72.154	112.92254	?-
113	Sb	positron	-84.424	112.909368	5/2+
113	Sn	positron	-88.3295	112.905175	1/2+
113	Tc	-ve beta	-63.966	112.93133	?-
113	Te	positron	-78.324	112.915916	7/2+
113	Xe	positron	-62.0614	112.933375	7/2-
114	Ag	-ve beta	-84.9445	113.908809	1+
114	Cd	28.7	-90.0209	113.903359	0+
114	Cs	proton	-54.565	113.941423	1+
114	I	positron	-72.796	113.921851	1+
114	In	-ve beta	-88.5684	113.904919	1+
114	Pd	-ve beta	-83.4938	113.910366	0+
114	Rh	-ve beta	-75.594	113.918847	1+
114	Ru	-ve beta	-70.794	113.924	0+
114	Sb	positron	-84.6756	113.909098	3+
114	Sn	0.65	-90.5571	113.902784	0+
114	Te	positron	-81.933	113.912042	0+
114	Xe	positron	-66.935	113.928143	0+
115	Ag	-ve beta	-84.987	114.908763	1/2-
115	Ba	positron	-48.708	114.94771	?-
115	Cd	-ve beta	-88.0905	114.905432	1/2+
115	Cs	positron	-59.677	114.935935	7/2-
115	I	positron	-76.403	114.917979	5/2+
115	In	95.7	-89.5361	114.90388	9/2+
115	Pd	-ve beta	-80.403	114.913685	5/2+
115	Rh	-ve beta	-74.403	114.920126	7/2+
115	Ru	-ve beta	-66.779	114.92831	?-
115	Sb	positron	-87.0014	114.906601	5/2+
115	Sn	0.34	-90.0314	114.903348	1/2+
115	Te	positron	-82.3627	114.911581	7/2+

115	Xe	positron	-68.444	114.926523	5/2+
116	Ag	-ve beta	-82.5596	115.911369	2-
116	Ba	electron capture	-54.325	115.94168	0+
116	Cd	7.49	-88.7194	115.904757	0+
116	I	positron	-77.571	115.916725	1+
116	In	-ve beta	-88.2491	115.905261	1+
116	Pd	-ve beta	-79.9526	115.914168	0+
116	Ru	-ve beta	-65.158	115.930051	0+
116	Sb	positron	-86.8161	115.9068	3+
116	Sn	14.5	-91.5235	115.901746	0+
116	Te	positron	-85.3162	115.90841	0+
116	Xe	positron	-72.911	115.921727	0+
117	Ag	-ve beta	-82.2433	116.911709	1/2-
117	Ba	electron capture	-56.962	116.938849	3/2-
117	Cd	-ve beta	-86.4253	116.907219	1/2+
117	I	positron	-80.4516	116.913632	5/2+
117	In	-ve beta	-88.9414	116.904518	9/2+
117	Pd	-ve beta	-76.532	116.91784	5/2+
117	Rh	-ve beta	-69.536	116.925351	7/2+
117	Sb	positron	-88.6401	116.904842	5/2+
117	Sn	7.68	-90.3967	116.902956	1/2+
117	Te	positron	-85.1053	116.908636	1/2+
117	Xe	positron	-74.0055	116.920552	5/2+
118	Ag	-ve beta	-79.6439	117.914499	1-
118	Ba	positron	-62	117.933441	0+
118	Cd	-ve beta	-86.7085	117.906915	0+
118	Cs	positron	-68.4281	117.92654	2-
118	I	positron	-80.6728	117.913395	2-
118	In	-ve beta	-87.2284	117.906357	1+
118	La	positron	-49.844	117.946491	?-
118	Pd	-ve beta	-75.5439	117.918901	0+
118	Rh	-ve beta	-65.736	117.92943	?-
118	Sb	positron	-87.995	117.905534	1+
118	Sn	24.2	-91.6517	117.901609	0+
118	Te	electron capture	-87.7173	117.905832	0+
118	Xe	positron	-77.7281	117.916556	0+
119	Ba	positron	-64.2391	118.931037	5/2+
119	Cd	-ve beta	-83.905	118.909925	3/2+
119	Cs	positron	-72.3357	118.922345	9/2+
119	I	positron	-83.6652	118.910182	5/2+
119	In	-ve beta	-87.7016	118.905849	9/2+
119	La	positron	-54.818	118.941151	?-
119	Pd	-ve beta	-72.023	118.922681	?-
119	Rh	-ve beta	-63.938	118.93136	?-
119	Sb	electron capture	-89.4718	118.903949	5/2+
119	Sn	8.58	-90.0656	118.903311	1/2+
119	Te	positron	-87.1788	118.90641	1/2+
119	Xe	positron	-78.6636	118.915552	5/2+
120	Ag	-ve beta	-75.773	119.918655	3+
120	Ba	positron	-68.902	119.926031	0+
120	Cd	-ve beta	-83.973	119.909852	0+

120	Cs	positron	-73.902	119.920664	0-
120	I	positron	-83.7839	119.910055	2-
120	In	-ve beta	-85.7315	119.907964	1+
120	La	positron	-57.687	119.938071	?-
120	Pd	-ve beta	-70.766	119.92403	0+
120	Sb	-ve beta	-88.4209	119.905077	1+
120	Sn	32.6	-91.1015	119.902199	0+
120	Te	0.1	-89.3989	119.904027	0+
120	Xe	positron	-81.8239	119.912159	0+
121	Ag	-ve beta	-74.5473	120.919971	7/2+
121	Ba	positron	-70.3349	120.924493	5/2+
121	Cd	-ve beta	-80.9473	120.9131	3/2+
121	Ce	positron	-52.471	120.943671	?-
121	Cs	positron	-77.1496	120.917177	3/2+
121	I	positron	-86.2819	120.907373	5/2+
121	In	-ve beta	-85.8373	120.907851	9/2+
121	La	positron	-62.401	120.93301	?-
121	Pd	-ve beta	-66.9	120.92818	?-
121	Pr	positron	-42.8469	120.954002	?-
121	Sb	57.2	-89.589	120.903823	5/2+
121	Sn	-ve beta	-89.2009	120.90424	3/2+
121	Te	positron	-88.5527	120.904936	1/2+
121	Xe	positron	-82.5496	120.91138	5/2+
122	Ag	-ve beta	-71.427	121.923321	3+
122	Ba	positron	-74.277	121.920261	0+
122	Cd	-ve beta	-80.574	121.913501	0+
122	Ce	positron	-57.743	121.938011	0+
122	Cs	positron	-78.1197	121.916136	1+
122	I	positron	-86.0689	121.907602	1+
122	In	-ve beta	-83.5754	121.910279	1+
122	La	positron	-64.543	121.930711	?-
122	Sb	-ve beta	-88.3243	121.905181	2-
122	Sn	4.63	-89.944	121.903442	0+
122	Te	2.6	-90.3029	121.903057	0+
122	Xe	electron capture	-85.1744	121.908562	0+
123	Ag	-ve beta	-69.955	122.924901	7/2+
123	Ba	positron	-75.591	122.91885	5/2+
123	Cd	-ve beta	-77.3126	122.917002	3/2+
123	Ce	positron	-60.072	122.935511	5/2-
123	Cs	positron	-81.0525	122.912987	1/2+
123	I	positron	-87.9288	122.905605	5/2+
123	In	-ve beta	-83.4276	122.910438	9/2+
123	La	positron	-68.707	122.926241	?-
123	Sb	42.8	-89.2222	122.904217	7/2+
123	Sn	-ve beta	-87.8186	122.905724	11/2-
123	Te	0.91	-89.1709	122.904272	1/2+
123	Xe	positron	-85.2528	122.908478	1/2+
124	Ag	-ve beta	-66.574	123.92853	1+
124	Ba	positron	-79.0943	123.915089	0+
124	Cd	-ve beta	-76.7102	123.917649	0+
124	Ce	positron	-64.72	123.930521	0+

124	Cs	positron	-81.7408	123.912248	1+
124	I	-ve beta	-87.3642	123.906211	2-
124	In	-ve beta	-80.8762	123.913177	3+
124	La	positron	-70.3	123.92453	7+
124	Pr	positron	-53.021	123.94308	?-
124	Sb	-ve beta	-87.6184	123.905939	3-
124	Sn	5.79	-88.2362	123.905275	0+
124	Te	4.82	-90.5237	123.90282	0+
124	Xe	0.1	-87.6578	123.905896	0+
125	Ba	positron	-79.5377	124.914613	1/2+
125	Cd	-ve beta	-73.3209	124.921287	3/2+
125	Ce	positron	-66.565	124.92854	5/2+
125	Cs	positron	-84.0976	124.909718	1/2+
125	I	electron capture	-88.8422	124.904625	5/2+
125	In	-ve beta	-80.4799	124.913602	9/2+
125	La	positron	-73.895	124.920671	11/2-
125	Pr	positron	-57.809	124.93794	?-
125	Sb	-ve beta	-88.2617	124.905248	7/2+
125	Sn	-ve beta	-85.8979	124.907786	11/2-
125	Te	7.14	-89.0284	124.904425	1/2+
125	Xe	positron	-87.1898	124.906399	1/2+
126	Ba	positron	-82.6753	125.911245	0+
126	Cd	-ve beta	-72.3269	125.922355	0+
126	Ce	positron	-70.7	125.924101	0+
126	Cs	positron	-84.348	125.909449	1+
126	I	-ve beta	-87.9156	125.905619	2-
126	In	-ve beta	-77.8129	125.916465	3+
126	La	positron	-75.106	125.919371	4-
126	Pr	positron	-60.258	125.935311	?-
126	Sb	-ve beta	-86.3979	125.907249	8-
126	Sn	-ve beta	-86.0199	125.907655	0+
126	Te	19	-90.0709	125.903306	0+
126	Xe	0.09	-89.1736	125.904269	0+
127	Ba	positron	-82.7947	126.911117	1/2+
127	Cd	-ve beta	-68.5261	126.926435	3/2+
127	Ce	positron	-71.958	126.922751	11/2-
127	Cs	positron	-86.2447	126.907413	1/2+
127	I	100	-88.9877	126.904469	5/2+
127	In	-ve beta	-76.9941	126.917344	9/2+
127	La	positron	-78.096	126.916161	3/2+
127	Nd	positron	-55.424	126.9405	5/2-
127	Pr	positron	-64.431	126.930831	?-
127	Sb	-ve beta	-86.7091	126.906915	7/2+
127	Sn	-ve beta	-83.5081	126.910351	11/2-
127	Te	-ve beta	-88.2901	126.905217	3/2+
127	Xe	electron capture	-88.3254	126.90518	1/2+
128	Ba	electron capture	-85.4094	127.90831	0+
128	Cd	-ve beta	-67.2904	127.927761	0+
128	Ce	positron	-75.572	127.918871	0+
128	Cs	positron	-85.9306	127.90775	1+
128	I	-ve beta	-87.7425	127.905805	1+

128	In	-ve beta	-74.3604	127.920171	3+
128	La	positron	-78.7594	127.915449	4-
128	Nd	positron	-60.184	127.93539	0+
128	Pr	positron	-66.322	127.928801	8-
128	Sb	-ve beta	-84.61	127.909168	8-
128	Sn	-ve beta	-83.336	127.910536	0+
128	Te	31.7	-88.9935	127.904462	0+
128	Xe	1.91	-89.8607	127.903531	0+
129	Ba	positron	-85.0682	128.908676	1/2+
129	Ce	positron	-76.298	128.918091	11/2-
129	Cs	positron	-87.5015	128.906064	1/2+
129	I	-ve beta	-88.5033	128.904989	7/2+
129	In	-ve beta	-72.9749	128.921659	9/2+
129	La	positron	-81.3482	128.91267	3/2+
129	Nd	positron	-62.168	128.93326	5/2+
129	Pr	positron	-69.992	128.924861	5/2-
129	Sb	-ve beta	-84.6259	128.909151	7/2+
129	Sn	-ve beta	-80.6299	128.913441	3/2+
129	Te	-ve beta	-87.0054	128.906597	3/2+
129	Xe	26.4	-88.697	128.904781	1/2+
130	Ba	0.11	-87.2708	129.906312	0+
130	Cd	-ve beta	-64.3591	129.930908	0+
130	Ce	positron	-79.466	129.91469	0+
130	Cs	-ve beta	-86.898	129.906712	1+
130	I	-ve beta	-86.9323	129.906675	5+
130	In	-ve beta	-69.9934	129.92486	1-
130	La	positron	-81.673	129.912321	3+
130	Nd	positron	-66.341	129.928781	0+
130	Pm	positron	-55.47	129.940451	?-
130	Pr	positron	-71.371	129.923381	8-
130	Sb	-ve beta	-82.3928	129.911548	8-
130	Sn	-ve beta	-80.2424	129.913857	0+
130	Te	33.8	-87.3528	129.906224	0+
130	Xe	4.1	-89.8809	129.90351	0+
131	Ba	positron	-86.693	130.906932	1/2+
131	Ce	positron	-79.713	130.914425	7/2+
131	Cs	electron capture	-88.0631	130.905461	5/2+
131	I	-ve beta	-87.4439	130.906126	7/2+
131	In	-ve beta	-68.1992	130.926786	9/2+
131	La	positron	-83.733	130.91011	3/2+
131	Nd	positron	-67.903	130.927104	5/2-
131	Pm	positron	-59.802	130.9358	?-
131	Pr	positron	-74.463	130.920061	3/2+
131	Sb	-ve beta	-82.0211	130.911947	7/2+
131	Sm	positron	-51.2826	130.944946	?-
131	Sn	-ve beta	-77.3831	130.916926	3/2+
131	Te	-ve beta	-85.2112	130.908523	3/2+
131	Xe	21.2	-88.4148	130.905084	3/2+
132	Ba	0.1	-88.4393	131.905057	0+
132	Ce	positron	-82.447	131.91149	0+
132	Cs	-ve beta	-87.1599	131.906431	2+

132	I	-ve beta	-85.7024	131.907995	4+
132	In	-ve beta	-63.0204	131.932345	7-
132	La	positron	-83.7313	131.910111	2-
132	Nd	positron	-71.613	131.923121	0+
132	Pm	positron	-61.711	131.933751	3+
132	Pr	positron	-75.339	131.919121	8-
132	Sb	-ve beta	-79.9234	131.914199	4+
132	Sm	positron	-55.9731	131.939911	0+
132	Sn	-ve beta	-76.6204	131.917745	0+
132	Te	-ve beta	-85.2094	131.908525	0+
132	Xe	26.9	-89.2794	131.904155	0+
133	Ba	electron capture	-87.5579	132.906003	1/2+
133	Ce	positron	-82.391	132.91155	9/2-
133	Cs	100	-88.0754	132.905448	7/2+
133	I	-ve beta	-85.8774	132.907808	7/2+
133	In	-ve beta	-60.3278	132.935236	?-
133	La	positron	-85.3279	132.908397	5/2+
133	Nd	positron	-72.461	132.922211	?-
133	Pm	positron	-65.465	132.929721	5/2-
133	Pr	positron	-78.059	132.916201	5/2+
133	Sb	-ve beta	-78.9564	132.915238	7/2+
133	Sm	positron	-57.073	132.93873	5/2+
133	Sn	-ve beta	-71.1264	132.923643	7/2-
133	Te	-ve beta	-82.9594	132.91094	3/2+
133	Xe	-ve beta	-87.648	132.905907	3/2+
134	Ba	2.42	-88.9543	133.904504	0+
134	Ce	electron capture	-84.7411	133.909027	0+
134	Cs	-ve beta	-86.8956	133.906714	4+
134	Eu	positron	-50.6146	133.945663	?-
134	I	-ve beta	-83.9544	133.909872	4+
134	La	positron	-85.2411	133.908491	1+
134	Nd	positron	-75.764	133.918665	0+
134	Pm	positron	-66.881	133.928201	2+
134	Pr	positron	-78.534	133.915691	2-
134	Sm	positron	-61.46	133.934021	0+
134	Sn	-ve beta	-67.226	133.927831	0+
134	Te	-ve beta	-82.3944	133.911547	0+
134	Xe	10.4	-88.1244	133.905395	0+
135	Ba	6.59	-87.8549	134.905685	3/2+
135	Ce	positron	-84.6293	134.909147	1/2+
135	Cs	-ve beta	-87.5863	134.905973	7/2+
135	Eu	positron	-54.287	134.941721	?-
135	I	-ve beta	-83.7873	134.910051	7/2+
135	La	positron	-86.6549	134.906973	5/2+
135	Nd	positron	-76.159	134.918241	9/2-
135	Pm	positron	-70.141	134.924701	11/2-
135	Pr	positron	-80.9094	134.913141	3/2+
135	Sb	-ve beta	-69.7053	134.925169	7/2+
135	Sm	positron	-63.016	134.93235	7/2+
135	Te	-ve beta	-77.8253	134.916452	7/2-
135	Xe	-ve beta	-86.4354	134.907209	3/2+

136	Ba	7.85	-88.8913	135.904572	0+
136	Ce	0.19	-86.4945	135.907145	0+
136	Cs	-ve beta	-86.3431	135.907308	8-
136	Eu	positron	-56.355	135.939501	7+
136	I	-ve beta	-79.4979	135.914656	1-
136	La	-ve beta	-86.0214	135.907653	1+
136	Nd	positron	-79.1572	135.915022	0+
136	Pm	positron	-71.3072	135.923449	2+
136	Pr	positron	-81.3682	135.912648	2+
136	Sb	-ve beta	-65.083	135.930131	0-
136	Sm	positron	-66.788	135.928301	0+
136	Te	-ve beta	-74.4231	135.920104	0+
136	Xe	8.9	-86.4241	135.907221	0+
137	Ba	11.2	-87.7258	136.905823	3/2+
137	Ce	positron	-85.9039	136.907779	3/2+
137	Cs	-ve beta	-86.5502	136.907085	7/2+
137	Eu	positron	-60.351	136.935211	11/2-
137	Gd	positron	-51.558	136.944651	?-
137	I	-ve beta	-76.5008	136.917874	7/2+
137	La	electron capture	-87.126	136.906467	7/2+
137	Nd	positron	-79.5119	136.914641	1/2+
137	Pm	positron	-73.932	136.920631	11/2-
137	Pr	positron	-83.2019	136.91068	5/2+
137	Sm	positron	-67.878	136.927131	9/2-
137	Te	-ve beta	-69.5592	136.925326	7/2-
137	Xe	-ve beta	-82.3782	136.911564	7/2-
138	Ba	71.7	-88.2662	137.905243	0+
138	Ce	0.25	-87.5732	137.905987	0+
138	Cs	-ve beta	-82.8932	137.911011	3-
138	Eu	positron	-61.991	137.93345	6-
138	Gd	positron	-55.918	137.93997	0+
138	I	-ve beta	-72.2992	137.922384	2-
138	La	0.09	-86.5287	137.907108	5+
138	Nd	positron	-82.036	137.911931	0+
138	Pm	positron	-75.136	137.919339	1+
138	Pr	positron	-83.1362	137.91075	1+
138	Sm	positron	-71.222	137.923541	0+
138	Te	-ve beta	-65.931	137.929221	0+
138	Xe	-ve beta	-80.1192	137.913989	0+
139	Ba	-ve beta	-84.9183	138.908837	7/2-
139	Ce	electron capture	-86.9574	138.906648	3/2+
139	Cs	-ve beta	-80.7056	138.91336	7/2+
139	Eu	positron	-65.382	138.92981	11/2-
139	Gd	positron	-57.678	138.938081	11/2-
139	I	-ve beta	-68.8426	138.926095	7/2+
139	La	99.9	-87.2354	138.90635	7/2+
139	Nd	positron	-82.0419	138.911925	3/2+
139	Pm	positron	-77.5199	138.91678	5/2+
139	Pr	positron	-84.8284	138.908934	5/2+
139	Sm	positron	-72.0599	138.922641	1/2+
139	Tb	proton	-48.41	138.94803	?-

139	Xe	-ve beta	-75.6486	138.918789	3/2-
140	Ba	-ve beta	-83.2778	139.910598	0+
140	Ce	88.5	-88.0869	139.905436	0+
140	Cs	-ve beta	-77.0591	139.917274	1-
140	Eu	positron	-66.968	139.928107	1+
140	Gd	positron	-61.508	139.933969	0+
140	I	-ve beta	-64.236	139.93104	3-
140	La	-ve beta	-84.325	139.909474	3-
140	Nd	electron capture	-84.4768	139.909311	0+
140	Pm	positron	-78.3881	139.915848	1+
140	Pr	positron	-84.6989	139.909073	1+
140	Sm	positron	-75.368	139.91909	0+
140	Tb	positron	-50.708	139.945563	5-
140	Xe	-ve beta	-72.9991	139.921633	0+
141	Ba	-ve beta	-79.7262	140.914411	3/2-
141	Ce	-ve beta	-85.4442	140.908273	7/2-
141	Cs	-ve beta	-74.4711	140.920053	7/2+
141	Dy	positron	-45.466	140.951191	9/2-
141	Eu	positron	-70.3939	140.92443	5/2+
141	Gd	positron	-63.146	140.932211	1/2+
141	I	-ve beta	-60.482	140.93507	?-
141	La	-ve beta	-82.9422	140.910959	7/2+
141	Nd	positron	-84.202	140.909606	3/2+
141	Pm	positron	-80.487	140.913594	5/2+
141	Pr	100	-86.0249	140.907649	5/2+
141	Sm	positron	-75.9439	140.918472	1/2+
141	Tb	positron	-54.809	140.941161	5/2-
141	Xe	-ve beta	-68.3211	140.926655	5/2+
142	Ba	-ve beta	-77.8247	141.916452	0+
142	Ce	11.1	-84.5419	141.909241	0+
142	Cs	-ve beta	-70.5183	141.924296	0-
142	Dy	positron	-50.167	141.946144	0+
142	Eu	positron	-71.6272	141.923106	1+
142	Gd	positron	-67.127	141.927937	0+
142	La	-ve beta	-80.0368	141.914078	2-
142	Nd	27.1	-85.9589	141.90772	0+
142	Pm	positron	-81.0853	141.912952	1+
142	Pr	-ve beta	-83.7967	141.910041	2-
142	Sm	positron	-78.9872	141.915204	0+
142	Tb	positron	-57.067	141.938737	1+
142	Xe	-ve beta	-65.4783	141.929707	0+
143	Ba	-ve beta	-73.9478	142.920614	5/2-
143	Ce	-ve beta	-81.6156	142.912383	3/2-
143	Cs	-ve beta	-67.7052	142.927316	3/2+
143	Dy	positron	-52.192	142.94397	1/2-
143	Eu	positron	-74.3584	142.920174	5/2+
143	Gd	positron	-68.351	142.926623	1/2+
143	Ho	proton	-42.159	142.954741	?-
143	La	-ve beta	-78.1911	142.916059	7/2+
143	Nd	12.2	-84.0112	142.909811	7/2-
143	Pm	positron	-82.9698	142.910929	5/2+

143	Pr	-ve beta	-83.0772	142.910814	7/2+
143	Sm	positron	-79.5268	142.914625	3/2+
143	Tb	positron	-60.957	142.93456	11/2-
143	Xe	-ve beta	-60.398	142.935161	5/2-
144	Ba	-ve beta	-71.7802	143.922941	0+
144	Ce	-ve beta	-80.4407	143.913644	0+
144	Cs	-ve beta	-63.3156	143.932028	1-
144	Dy	positron	-56.756	143.93907	0+
144	Eu	positron	-75.6465	143.918791	1+
144	Gd	positron	-71.907	143.922805	0+
144	Ho	positron	-45	143.951691	?-
144	La	-ve beta	-74.8995	143.919593	3-
144	Nd	23.8	-83.7569	143.910084	0+
144	Pm	-ve beta	-81.4251	143.912587	5-
144	Pr	-ve beta	-80.7594	143.913302	0-
144	Sm	3.1	-81.9753	143.911997	0+
144	Tb	positron	-62.988	143.93238	1+
144	Xe	-ve beta	-57.25	143.93854	0+
145	Ba	-ve beta	-68.0506	144.926945	5/2-
145	Ce	-ve beta	-77.099	144.917231	3/2-
145	Cs	-ve beta	-60.1638	144.935412	3/2+
145	Dy	positron	-58.718	144.936964	1/2+
145	Er	positron	-39.262	144.957851	?-
145	Eu	positron	-78.0009	144.916263	5/2+
145	Gd	positron	-72.9465	144.921689	1/2+
145	Ho	positron	-49.611	144.946741	?-
145	La	-ve beta	-72.9823	144.921651	7/2-
145	Nd	8.3	-81.441	144.91257	7/2-
145	Pm	electron capture	-81.2778	144.912745	5/2+
145	Pr	-ve beta	-79.6357	144.914508	7/2+
145	Sm	electron capture	-80.6611	144.913407	7/2-
145	Tb	positron	-66.4385	144.928676	1/2+
146	Ba	-ve beta	-65.039	145.930178	0+
146	Ce	-ve beta	-75.7037	145.918729	0+
146	Cs	-ve beta	-55.6625	145.940244	1-
146	Dy	positron	-62.862	145.932515	0+
146	Er	positron	-44.758	145.951951	0+
146	Eu	positron	-77.1272	145.917201	4-
146	Gd	positron	-76.097	145.918307	0+
146	Ho	positron	-52.182	145.943981	10+
146	La	-ve beta	-69.157	145.925758	2-
146	Nd	17.2	-80.935	145.913113	0+
146	Pm	-ve beta	-79.463	145.914694	3-
146	Pr	-ve beta	-76.7388	145.917618	2-
146	Sm	alpha	-81.005	145.913038	0+
146	Tb	positron	-68.022	145.926976	1+
146	Tm	proton	-30.846	145.966886	5-
147	Ba	-ve beta	-61.485	146.933994	3/2-
147	Ce	-ve beta	-72.18	146.922512	5/2-
147	Cs	-ve beta	-52.2318	146.943927	3/2+
147	Dy	positron	-64.3827	146.930883	1/2+

147	Er	positron	-47.134	146.9494	11/2-
147	Eu	positron	-77.5545	146.916742	5/2+
147	Gd	positron	-75.3667	146.919091	7/2-
147	Ho	positron	-56.234	146.939631	11/2-
147	La	-ve beta	-67.235	146.927821	3/2+
147	Nd	-ve beta	-78.1557	146.916097	5/2-
147	Pm	-ve beta	-79.0518	146.915135	7/2+
147	Pr	-ve beta	-75.47	146.91898	3/2+
147	Sm	15	-79.2759	146.914895	7/2-
147	Tb	positron	-70.7553	146.924042	1/2+
147	Tm	proton	-36.408	146.960915	11/2-
147	Xe	-ve beta	-52.0217	146.944153	?-
148	Ba	-ve beta	-58.048	147.937683	0+
148	Ce	-ve beta	-70.4253	147.924396	0+
148	Cs	-ve beta	-47.5231	147.948982	8-
148	Dy	positron	-67.9081	147.927098	0+
148	Er	positron	-51.754	147.94444	0+
148	Eu	-ve beta	-76.2388	147.918155	5-
148	Gd	alpha	-76.2792	147.918112	0+
148	Ho	positron	-58.508	147.93719	1+
148	La	-ve beta	-63.163	147.932192	2-
148	Nd	5.76	-77.4173	147.91689	0+
148	Pm	-ve beta	-76.8779	147.917469	1-
148	Pr	-ve beta	-72.4853	147.922184	1-
148	Sm	11.3	-79.3462	147.914819	0+
148	Tb	positron	-70.5862	147.924223	2-
148	Yb	electron capture	-30.497	147.96726	0+
149	Ba	-ve beta	-53.961	148.942071	?-
149	Ce	-ve beta	-66.7978	148.92829	9/2-
149	Cs	-ve beta	-44.209	148.95254	?-
149	Dy	positron	-67.6867	148.927336	7/2-
149	Er	positron	-53.939	148.942095	1/2+
149	Eu	electron capture	-76.4543	148.917924	5/2+
149	Gd	positron	-75.1348	148.91934	7/2-
149	Ho	positron	-61.673	148.933792	11/2-
149	La	-ve beta	-61.292	148.934201	7/2-
149	Nd	-ve beta	-74.3847	148.920145	5/2-
149	Pm	-ve beta	-76.0754	148.91833	7/2+
149	Pr	-ve beta	-70.9878	148.923792	5/2+
149	Sm	13.8	-77.1465	148.91718	7/2-
149	Tb	positron	-71.4987	148.923244	1/2+
149	Tm	proton	-44.367	148.95237	11/2-
149	Yb	positron	-33.683	148.96384	?-
150	Ba	-ve beta	-50.711	149.94556	0+
150	Ce	-ve beta	-64.9933	149.930227	0+
150	Dy	positron	-69.321	149.925581	0+
150	Er	positron	-57.973	149.937764	0+
150	Eu	-ve beta	-74.8001	149.919699	5-
150	Gd	alpha	-75.7713	149.918657	0+
150	Ho	positron	-62.081	149.933354	2-
150	La	-ve beta	-57.156	149.938641	?-

150	Lu	proton	-25.124	149.973028	?-
150	Nd	5.64	-73.6933	149.920888	0+
150	Pm	-ve beta	-73.6068	149.92098	1-
150	Pr	-ve beta	-68.0033	149.926996	1-
150	Sm	7.4	-77.0608	149.917272	0+
150	Tb	positron	-71.1149	149.923656	2-
150	Tm	positron	-47.143	149.94939	6-
150	Yb	positron	-39.011	149.95812	0+
151	Ce	-ve beta	-61.46	150.934021	9/2-
151	Dy	positron	-68.7623	150.926181	7/2-
151	Er	positron	-58.414	150.93729	7/2-
151	Eu	47.8	-74.6627	150.919847	5/2+
151	Gd	electron capture	-74.1985	150.920345	7/2-
151	Ho	positron	-63.6346	150.931686	11/2-
151	La	-ve beta	-54.641	150.941341	?-
151	Lu	proton	-30.683	150.967061	11/2-
151	Nd	-ve beta	-70.9564	150.923826	3/2+
151	Pm	-ve beta	-73.3988	150.921204	5/2+
151	Pr	-ve beta	-66.7864	150.928302	3/2-
151	Sm	-ve beta	-74.5859	150.919929	5/2-
151	Tb	positron	-71.6331	150.923099	1/2+
151	Tm	positron	-50.884	150.945374	11/2-
151	Yb	positron	-41.684	150.955251	1/2+
152	Ce	-ve beta	-59.047	151.936611	0+
152	Dy	electron capture	-70.1275	151.924716	0+
152	Er	positron	-60.5488	151.934999	0+
152	Eu	-ve beta	-72.8981	151.921741	3-
152	Gd	0.2	-74.7162	151.91979	0+
152	Ho	positron	-63.6538	151.931665	2-
152	Lu	proton	-34.074	151.96342	5-
152	Nd	-ve beta	-70.1574	151.924684	0+
152	Pm	-ve beta	-71.2676	151.923492	1+
152	Pr	-ve beta	-63.463	151.93187	4-
152	Sm	26.7	-74.7722	151.919729	0+
152	Tb	positron	-70.7262	151.924073	2-
152	Tm	positron	-51.884	151.944301	2-
152	Yb	positron	-46.419	151.950168	0+
153	Ce	-ve beta	-54.995	152.940961	?-
153	Dy	positron	-69.1514	152.925764	7/2-
153	Er	positron	-60.4591	152.935095	7/2-
153	Eu	52.2	-73.377	152.921227	5/2+
153	Gd	electron capture	-72.8922	152.921748	3/2-
153	Ho	positron	-65.0227	152.930196	11/2-
153	Lu	proton	-38.48	152.95869	11/2-
153	Nd	-ve beta	-67.068	152.928	1/2-
153	Pm	-ve beta	-70.6682	152.924135	5/2-
153	Pr	-ve beta	-61.544	152.93393	?-
153	Sm	-ve beta	-72.5686	152.922095	3/2+
153	Tb	positron	-71.3219	152.923433	5/2+
153	Tm	positron	-54	152.942029	11/2-
153	Yb	positron	-47.311	152.94921	7/2-

154	Dy	alpha	-70.3998	153.924423	0+
154	Er	positron	-62.6165	153.932779	0+
154	Eu	-ve beta	-71.7477	153.922976	3-
154	Gd	2.18	-73.7162	153.920863	0+
154	Hf	electron capture	-33.301	153.96425	0+
154	Ho	positron	-64.6484	153.930598	2-
154	Nd	-ve beta	-65.614	153.929561	0+
154	Pm	-ve beta	-68.4108	153.926559	0-
154	Pr	-ve beta	-57.697	153.93806	3+
154	Sm	22.7	-72.4648	153.922206	0+
154	Tb	-ve beta	-70.1542	153.924687	0-
154	Tm	positron	-54.563	153.941425	2-
154	Yb	positron	-50.074	153.946244	0+
155	Dy	positron	-69.1643	154.92575	3/2-
155	Er	positron	-62.2188	154.933206	7/2-
155	Eu	-ve beta	-71.8278	154.92289	5/2+
155	Gd	14.8	-72.08	154.92262	3/2-
155	Hf	positron	-34.689	154.96276	7/2-
155	Ho	positron	-66.0623	154.92908	5/2+
155	Lu	proton	-42.688	154.954173	1/2+
155	Nd	-ve beta	-62.01	154.93343	9/2-
155	Pm	-ve beta	-67.03	154.928041	5/2-
155	Pr	-ve beta	-55.34	154.940591	?-
155	Sm	-ve beta	-70.2007	154.924637	3/2-
155	Tb	electron capture	-71.2588	154.923501	3/2+
155	Tm	positron	-56.6404	154.939195	11/2-
155	Yb	positron	-50.652	154.945623	7/2-
156	Dy	0.06	-70.5343	155.924279	0+
156	Er	positron	-64.104	155.931182	0+
156	Eu	-ve beta	-70.094	155.924752	0+
156	Gd	20.5	-72.5451	155.92212	0+
156	Hf	electron capture	-37.961	155.959248	0+
156	Ho	positron	-65.474	155.929711	5+
156	Nd	-ve beta	-60.109	155.935471	0+
156	Pm	-ve beta	-64.2167	155.931061	4-
156	Sm	-ve beta	-69.3717	155.925527	0+
156	Ta	proton	-26.371	155.97169	2-
156	Tb	-ve beta	-70.1007	155.924744	3-
156	Tm	positron	-56.8853	155.938932	2-
156	Yb	positron	-53.3124	155.942767	0+
157	Dy	positron	-69.4323	156.925462	3/2-
157	Er	positron	-63.4223	156.931914	3/2-
157	Eu	-ve beta	-69.4712	156.92542	5/2+
157	Gd	15.6	-70.8338	156.923957	3/2-
157	Hf	positron	-39.004	156.958128	7/2-
157	Ho	positron	-66.8923	156.928189	7/2-
157	Lu	positron	-46.4792	156.950103	1/2+
157	Nd	-ve beta	-56.057	156.939821	?-
157	Pm	-ve beta	-62.224	156.9332	5/2-
157	Sm	-ve beta	-66.7712	156.928319	3/2-
157	Ta	proton	-29.673	156.968145	11/2-

157	Tb	electron capture	-70.7737	156.924022	3/2+
157	Tm	positron	-58.9423	156.936723	1/2+
157	Yb	positron	-53.4119	156.94266	7/2-
158	Dy	0.1	-70.4166	157.924405	0+
158	Er	electron capture	-65.28	157.92992	0+
158	Eu	-ve beta	-67.2147	157.927843	1-
158	Gd	24.8	-70.6998	157.924101	0+
158	Hf	positron	-42.245	157.954648	0+
158	Ho	positron	-66.18	157.928953	5+
158	Lu	positron	-47.348	157.94917	9-
158	Pm	-ve beta	-58.973	157.93669	7-
158	Sm	-ve beta	-65.27	157.92993	0+
158	Ta	proton	-31.328	157.966368	9-
158	Tb	-ve beta	-69.4798	157.925411	3-
158	Tm	positron	-58.75	157.93693	2-
158	W	positron	-24.276	157.973939	0+
158	Yb	positron	-56.021	157.939859	0+
159	Dy	electron capture	-69.1767	158.925736	3/2-
159	Er	positron	-64.5706	158.930681	3/2-
159	Eu	-ve beta	-66.0573	158.929085	5/2+
159	Gd	-ve beta	-68.5717	158.926386	3/2-
159	Hf	positron	-43.004	158.953834	7/2-
159	Ho	positron	-67.3391	158.927709	7/2-
159	Lu	positron	-49.6827	158.946664	11/2-
159	Pm	-ve beta	-56.542	158.9393	?-
159	Sm	-ve beta	-62.224	158.9332	5/2-
159	Ta	proton	-34.517	158.962945	11/2-
159	Tb	100	-69.5423	158.925344	3/2+
159	Tm	positron	-60.7206	158.934814	5/2+
159	W	positron	-25.821	158.97228	7/2-
159	Yb	positron	-55.6706	158.940236	5/2-
160	Dy	2.34	-69.6815	159.925194	0+
160	Er	electron capture	-66.0624	159.92908	0+
160	Eu	-ve beta	-63.372	159.931968	1-
160	Gd	21.9	-67.9518	159.927051	0+
160	Hf	positron	-45.9848	159.950634	0+
160	Ho	positron	-66.39	159.928728	5+
160	Lu	positron	-50.282	159.94602	9-
160	Re	proton	-17.247	159.981485	?-
160	Sm	-ve beta	-60.286	159.935281	0+
160	Ta	positron	-35.896	159.961464	9-
160	Tb	-ve beta	-67.8462	159.927165	3-
160	Tm	positron	-60.1724	159.935403	1-
160	W	positron	-29.464	159.968369	0+
160	Yb	positron	-58.162	159.937561	0+
161	Dy	18.9	-68.0646	160.92693	5/2+
161	Er	positron	-65.2031	160.930002	3/2-
161	Eu	-ve beta	-61.777	160.93368	5/2-
161	Gd	-ve beta	-65.5159	160.929666	5/2-
161	Hf	positron	-46.2653	160.950333	7/2-
161	Ho	electron capture	-67.2058	160.927852	7/2-

161	Lu	positron	-52.589	160.943544	5/2+	
161	Re	proton	-20.809	160.977661	2-Nov	-
161	Sm	-ve beta	-56.802	160.939021	?-	
161	Ta	positron	-38.7744	160.958374	2-Nov	-
161	Tb	-ve beta	-67.4715	160.927567	3/2+	
161	Tm	positron	-62.0391	160.933399	7/2+	
161	W	positron	-30.656	160.96709	7/2-	
161	Yb	positron	-57.889	160.937854	3/2-	
162	Dy	25.5	-68.1902	161.926795	0+	
162	Er	0.14	-66.3455	161.928776	0+	
162	Eu	-ve beta	-58.647	161.93704	?-	
162	Gd	-ve beta	-64.2905	161.930982	0+	
162	Hf	positron	-49.1791	161.947204	0+	
162	Ho	-ve beta	-66.05	161.929093	1+	
162	Lu	positron	-52.628	161.943502	1-	
162	Os	positron	-15.072	161.98382	0+	
162	Re	proton	-22.629	161.975707	9-	
162	Ta	positron	-39.916	161.957149	9-	
162	Tb	-ve beta	-65.6844	161.929485	1-	
162	Tm	positron	-61.5361	161.933939	1-	
162	W	positron	-34.146	161.963343	0+	
162	Yb	positron	-59.848	161.935751	0+	
163	Dy	24.9	-66.3898	162.928728	5/2-	
163	Er	positron	-65.1772	162.93003	5/2-	
163	Eu	-ve beta	-56.532	162.939311	?-	
163	Gd	-ve beta	-61.488	162.93399	5/2-	
163	Hf	positron	-49.318	162.947055	9/2-	
163	Ho	electron capture	-66.3872	162.928731	7/2-	
163	Lu	positron	-54.7682	162.941204	1/2-	
163	Os	positron	-16.722	162.982048	7/2-	
163	Re	proton	-26.025	162.972061	11/2-	
163	Ta	positron	-42.5088	162.954365	11/2-	
163	Tb	-ve beta	-64.6047	162.930645	3/2+	
163	Tm	positron	-62.7382	162.932648	1/2+	
163	W	positron	-35.059	162.962363	7/2-	
163	Yb	positron	-59.3682	162.936266	3/2-	
164	Dy	28.2	-65.9766	163.929172	0+	
164	Er	1.61	-65.9523	163.929198	0+	
164	Gd	-ve beta	-59.746	163.935861	0+	
164	Hf	positron	-51.77	163.944423	0+	
164	Ho	-ve beta	-64.9899	163.930231	1+	
164	Lu	positron	-54.744	163.94123	10-	
164	Os	positron	-20.561	163.977927	0+	
164	Re	proton	-27.548	163.970426	9-	
164	Ta	positron	-43.249	163.953571	3+	
164	Tb	-ve beta	-62.0866	163.933348	5+	
164	Tm	positron	-61.9903	163.933451	1+	
164	W	positron	-38.2811	163.958904	0+	
164	Yb	electron capture	-60.994	163.934521	0+	
165	Dy	-ve beta	-63.6211	164.9317	7/2+	
165	Er	electron capture	-64.531	164.930724	5/2-	

165	Gd	-ve beta	-56.467	164.939381	?-
165	Hf	positron	-51.661	164.94454	5/2-
165	Ho	100	-64.9073	164.93032	7/2-
165	Lu	positron	-56.2565	164.939607	7/2+
165	Os	positron	-21.914	164.976475	7/2-
165	Re	proton	-30.6916	164.967051	11/2-
165	Ta	positron	-45.813	164.950818	11/2-
165	Tb	-ve beta	-60.659	164.93488	3/2+
165	Tm	positron	-62.9385	164.932433	1/2+
165	W	positron	-38.8086	164.958338	9/2-
165	Yb	positron	-60.1765	164.935398	5/2-
166	Dy	-ve beta	-62.5933	165.932804	0+
166	Er	33.6	-64.9341	165.930291	0+
166	Hf	positron	-53.794	165.94225	0+
166	Ho	-ve beta	-63.0796	165.932282	0-
166	Ir	proton	-13.501	165.985506	?-
166	Lu	positron	-56.1105	165.939763	6-
166	Os	positron	-25.591	165.972527	0+
166	Re	positron	-31.854	165.965804	10-
166	Ta	positron	-46.137	165.95047	2+
166	Tb	-ve beta	-57.706	165.938051	?-
166	Tm	positron	-61.8941	165.933554	2+
166	W	positron	-41.8977	165.955021	0+
166	Yb	electron capture	-61.5905	165.93388	0+
167	Dy	-ve beta	-59.9422	166.93565	1/2-
167	Er	23	-63.2989	166.932046	7/2+
167	Hf	positron	-53.468	166.9426	5/2-
167	Ho	-ve beta	-62.2922	166.933127	7/2-
167	Ir	proton	-17.057	166.981689	7/2-
167	Lu	positron	-57.4663	166.938308	7/2+
167	Os	positron	-26.655	166.971385	9/2-
167	Re	positron	-34.841	166.962597	1/2-
167	Ta	positron	-48.464	166.947972	11/2-
167	Tb	-ve beta	-55.843	166.940051	?-
167	Tm	electron capture	-62.5506	166.93285	1/2+
167	W	positron	-42.224	166.954671	9/2-
167	Yb	positron	-60.5963	166.934948	5/2-
168	Dy	-ve beta	-58.47	167.93723	0+
168	Er	26.8	-62.9987	167.932369	0+
168	Hf	positron	-55.303	167.94063	0+
168	Ho	-ve beta	-60.0844	167.935497	3+
168	Ir	proton	-18.712	167.979912	6-
168	Lu	positron	-57.1017	167.938699	6-
168	Os	positron	-30.0375	167.967754	0+
168	Pt	positron	-11.146	167.988034	0+
168	Re	positron	-35.761	167.961609	5+
168	Ta	positron	-48.633	167.947791	2+
168	Tm	-ve beta	-61.3196	167.934171	3+
168	W	positron	-44.839	167.951864	0+
168	Yb	0.13	-61.5766	167.933895	0+
169	Dy	-ve beta	-55.6065	168.940304	5/2-

169	Er	-ve beta	-60.9305	168.934589	1/2-
169	Hf	positron	-54.8102	168.941159	5/2-
169	Ho	-ve beta	-58.8065	168.936869	7/2-
169	Ir	proton	-21.9909	168.976392	3/2-
169	Lu	positron	-58.0795	168.93765	7/2+
169	Os	positron	-30.666	168.967079	9/2-
169	Pt	positron	-12.649	168.986421	9/2-
169	Re	positron	-38.35	168.95883	11/2-
169	Ta	positron	-50.375	168.945921	5/2-
169	Tm	100	-61.2817	168.934212	1/2+
169	W	positron	-44.936	168.95176	5/2-
169	Yb	electron capture	-60.3725	168.935188	7/2+
170	Er	14.9	-60.118	169.935461	0+
170	Hf	positron	-56.216	169.93965	0+
170	Ho	-ve beta	-56.248	169.939616	6+
170	Ir	proton	-23.256	169.975034	6-
170	Lu	positron	-57.3125	169.938473	0+
170	Os	positron	-33.9323	169.963572	0+
170	Pt	positron	-16.462	169.982327	0+
170	Re	positron	-38.971	169.958163	5+
170	Ta	positron	-50.217	169.94609	3+
170	Tm	-ve beta	-59.8036	169.935799	1-
170	W	positron	-47.238	169.949288	0+
170	Yb	3.05	-60.7717	169.934759	0+
171	Er	-ve beta	-57.7282	170.938027	5/2-
171	Hf	positron	-55.433	170.940491	7/2+
171	Ho	-ve beta	-54.5282	170.941462	7/2-
171	Ir	proton	-26.257	170.971812	3/2-
171	Lu	positron	-57.8363	170.937911	7/2+
171	Os	positron	-34.429	170.963039	5/2-
171	Pt	positron	-17.623	170.981081	9/2-
171	Re	positron	-41.492	170.955457	9/2-
171	Ta	positron	-51.735	170.944461	5/2-
171	Tm	-ve beta	-59.2187	170.936427	1/2+
171	W	positron	-47.162	170.94937	5/2-
171	Yb	14.3	-59.3151	170.936323	1/2-
172	Au	proton	-9.187	171.990137	?-
172	Er	-ve beta	-56.4928	171.939353	0+
172	Hf	electron capture	-56.3943	171.939459	0+
172	Ho	-ve beta	-51.709	171.944489	?-
172	Ir	positron	-27.346	171.970643	3+
172	Lu	positron	-56.7443	171.939083	4-
172	Os	electron capture	-37.187	171.960078	0+
172	Pt	positron	-21.148	171.977297	0+
172	Ta	positron	-51.4743	171.944741	3+
172	Tm	-ve beta	-57.3833	171.938397	2-
172	W	positron	-48.974	171.947425	0+
172	Yb	21.9	-59.2635	171.936379	0+
173	Au	proton	-12.6692	172.986399	3/2-
173	Er	-ve beta	-53.663	172.942391	7/2-
173	Hf	positron	-55.284	172.940651	1/2-

173	Lu	electron capture	-56.889	172.938928	7/2+
173	Os	positron	-37.454	172.959792	5/2-
173	Pt	electron capture	-21.8882	172.976502	9/2-
173	Re	positron	-43.722	172.953063	5/2-
173	Ta	positron	-52.494	172.943646	5/2-
173	Tm	-ve beta	-56.2617	172.939601	1/2+
173	W	positron	-48.494	172.94794	5/2-
173	Yb	16.1	-57.5598	172.938208	5/2-
174	Au	proton	-14.049	173.984918	6-
174	Er	-ve beta	-52.117	173.944051	0+
174	Hf	0.16	-55.851	173.940042	0+
174	Hg	positron	-6.817	173.992682	0+
174	Ir	positron	-30.922	173.966804	3+
174	Lu	-ve beta	-55.5787	173.940334	1-
174	Os	positron	-39.941	173.957122	0+
174	Pt	positron	-25.3238	173.972814	0+
174	Re	positron	-43.675	173.953113	10-
174	Ta	positron	-52.006	173.94417	3+
174	Tm	-ve beta	-53.8731	173.942165	4-
174	W	positron	-50.152	173.94616	0+
174	Yb	31.8	-56.9531	173.938859	0+
175	Au	proton	-17.054	174.981692	3/2-
175	Hf	electron capture	-54.4883	174.941505	5/2-
175	Hg	positron	-8.159	174.991241	9/2-
175	Ir	positron	-33.447	174.964093	5/2-
175	Lu	97.4	-55.1741	174.940769	7/2+
175	Os	positron	-40.024	174.957033	5/2-
175	Pt	positron	-25.825	174.972276	9/2-
175	Re	positron	-45.277	174.951394	5/2-
175	Ta	positron	-52.49	174.94365	7/2+
175	Tm	-ve beta	-52.3191	174.943834	1/2+
175	W	positron	-49.583	174.946771	1/2-
175	Yb	-ve beta	-54.7041	174.941273	7/2-
176	Au	proton	-18.379	175.980269	6-
176	Hf	5.21	-54.5824	175.941404	0+
176	Hg	positron	-11.7985	175.987334	0+
176	Ir	positron	-33.986	175.963515	6-
176	Lu	2.59	-53.3908	175.942683	7-
176	Os	positron	-41.948	175.954967	0+
176	Pt	positron	-28.876	175.969001	0+
176	Re	positron	-45.112	175.951571	3+
176	Ta	positron	-51.4724	175.944743	1-
176	Tl	proton	0.638	176.000685	?-
176	Tm	-ve beta	-49.617	175.946734	4+
176	W	electron capture	-50.683	175.94559	0+
176	Yb	12.7	-53.4969	175.942569	0+
177	Au	proton	-21.229	176.97721	3/2-
177	Hf	18.6	-52.8899	176.943221	7/2-
177	Hg	positron	-12.7248	176.986339	9/2-
177	Ir	positron	-36.17	176.96117	5/2-
177	Lu	-ve beta	-52.3917	176.943756	7/2+

177	Os	positron	-41.85	176.955073	1/2-
177	Pt	positron	-29.386	176.968453	5/2-
177	Re	positron	-46.323	176.950271	5/2-
177	Ta	positron	-51.7239	176.944473	7/2+
177	Tl	proton	-2.904	176.996882	?-
177	Tm	-ve beta	-47.804	176.948681	1/2+
177	W	positron	-49.723	176.946621	1/2-
177	Yb	-ve beta	-50.9924	176.945258	9/2+
178	Au	positron	-22.379	177.975975	6-
178	Hf	27.3	-52.4449	177.943699	0+
178	Hg	positron	-16.3209	177.982479	0+
178	Ir	positron	-36.25	177.961084	3-
178	Lu	-ve beta	-50.3457	177.945952	1+
178	Os	positron	-43.4468	177.953358	0+
178	Pb	positron	3.448	178.003702	0+
178	Pt	positron	-31.942	177.965709	0+
178	Re	positron	-45.7816	177.950852	3+
178	Ta	positron	-50.5329	177.945751	1+
178	Tl	proton	-4.444	177.995229	?-
178	W	electron capture	-50.4416	177.945849	0+
178	Yb	-ve beta	-49.7011	177.946644	0+
179	Au	positron	-24.941	178.973225	3/2-
179	Hf	13.6	-50.4726	178.945816	9/2+
179	Hg	positron	-16.969	178.981783	9/2-
179	Ir	positron	-38.052	178.95915	5/2-
179	Lu	-ve beta	-49.0673	178.947325	7/2+
179	Os	positron	-42.914	178.95393	1/2-
179	Pb	positron	2.036	179.002186	?-
179	Pt	positron	-32.318	178.965305	1/2-
179	Re	positron	-46.5925	178.949981	5/2+
179	Ta	electron capture	-50.3622	178.945934	7/2+
179	Tl	proton	-7.769	178.99166	?-
179	W	positron	-49.3025	178.947072	7/2-
179	Yb	-ve beta	-46.714	178.949851	1/2-
180	Au	positron	-25.713	179.972396	3-
180	Hf	35.1	-49.7895	179.946549	0+
180	Hg	positron	-20.193	179.978322	0+
180	Ir	positron	-37.958	179.959251	3-
180	Lu	-ve beta	-46.6865	179.94988	3+
180	Os	positron	-44.375	179.952362	0+
180	Pb	positron	-1.924	179.997935	0+
180	Pt	positron	-34.266	179.963214	0+
180	Re	positron	-45.8412	179.950788	1-
180	Ta	0.01	-48.9355	179.947466	9+
180	Tl	proton	-9.135	179.990193	?-
180	W	0.12	-49.6435	179.946706	0+
180	Yb	-ve beta	-44.6875	179.952026	0+
181	Au	positron	-27.993	180.969949	5/2-
181	Hf	-ve beta	-47.4138	180.9491	1/2-
181	Hg	positron	-20.674	180.977806	1/2-
181	Ir	positron	-39.516	180.957578	5/2-

181	Lu	-ve beta	-44.926	180.95177	7/2+
181	Os	positron	-43.585	180.95321	1/2-
181	Pb	positron	-2.9256	180.996859	13/2+
181	Pt	positron	-34.292	180.963186	1/2-
181	Re	positron	-46.5148	180.950065	5/2+
181	Ta	100	-48.4412	180.947997	7/2+
181	Tl	proton	-12.204	180.986899	1/2+
181	W	electron capture	-48.2533	180.948198	9/2+
182	Au	positron	-28.299	181.96962	3-
182	Hf	-ve beta	-46.0597	181.950553	0+
182	Hg	positron	-23.519	181.974752	0+
182	Ir	positron	-38.929	181.958208	5+
182	Lu	-ve beta	-41.6032	181.955337	0-
182	Os	electron capture	-44.5384	181.952186	0+
182	Pb	positron	-6.8199	181.992679	0+
182	Pt	positron	-36.0793	181.961268	0+
182	Re	positron	-45.4464	181.951212	7+
182	Ta	-ve beta	-46.4328	181.950153	3-
182	Tl	positron	-13.404	181.98561	7+
182	W	26.5	-48.2464	181.948206	0+
183	Au	positron	-30.161	182.967621	5/2-
183	Hf	-ve beta	-43.2857	182.953531	3/2-
183	Hg	positron	-23.854	182.974392	1/2-
183	Ir	positron	-40.228	182.956814	5/2-
183	Lu	-ve beta	-39.7554	182.957321	7/2+
183	Os	positron	-43.678	182.95311	9/2+
183	Pb	positron	-7.517	182.99193	1/2-
183	Pt	positron	-35.65	182.961728	1/2-
183	Re	electron capture	-45.8098	182.950822	5/2+
183	Ta	-ve beta	-45.2957	182.951373	7/2+
183	Tl	proton	-16.208	182.9826	1/2+
183	W	14.3	-46.3658	182.950225	1/2-
184	Au	positron	-30.233	183.967544	5+
184	Hf	-ve beta	-41.5002	183.955448	0+
184	Hg	positron	-26.179	183.971896	0+
184	Ir	positron	-39.6928	183.957388	5-
184	Lu	-ve beta	-36.0883	183.961258	0-
184	Os	0.02	-44.2548	183.952491	0+
184	Pb	positron	-10.993	183.988199	0+
184	Pt	positron	-37.36	183.959893	0+
184	Re	-ve beta	-44.2235	183.952525	3-
184	Ta	-ve beta	-42.8402	183.95401	5-
184	Tl	positron	-16.99	183.981761	2+
184	W	30.6	-45.7062	183.950933	0+
185	Au	positron	-31.911	184.965742	5/2-
185	Bi	proton	-1.779	184.99809	?-
185	Hf	-ve beta	-38.1635	184.95903	?-
185	Hg	positron	-26.089	184.971993	1/2-
185	Ir	positron	-40.436	184.956591	5/2-
185	Os	electron capture	-42.8089	184.954043	1/2-
185	Pb	positron	-11.569	184.98758	3/2-

185	Pt	positron	-36.618	184.960689	9/2+
185	Re	37.4	-43.8217	184.952956	5/2+
185	Ta	-ve beta	-41.3966	184.955559	7/2+
185	Tl	positron	-19.468	184.9791	1/2+
185	W	-ve beta	-43.3886	184.953421	3/2-
186	Au	positron	-31.7489	185.965916	3-
186	Bi	proton	-3.279	185.99648	?-
186	Hg	positron	-28.4486	185.969459	0+
186	Ir	positron	-39.1685	185.957951	5+
186	Os	1.58	-42.9995	185.953839	0+
186	Pb	positron	-14.624	185.984301	0+
186	Pt	positron	-37.7895	185.959432	0+
186	Re	-ve beta	-41.93	185.954987	1-
186	Ta	-ve beta	-38.6106	185.95855	2-
186	Tl	positron	-19.983	185.978548	7+
186	W	28.4	-42.5116	185.954362	0+
187	Au	positron	-33.01	186.964563	1/2+
187	Bi	electron capture	-6.094	186.993458	9/2-
187	Hg	positron	-28.145	186.969785	13/2+
187	Ir	positron	-39.7184	186.957361	3/2+
187	Os	1.6	-41.2208	186.955748	1/2-
187	Pt	positron	-36.61	186.960698	3/2-
187	Re	62.6	-41.2182	186.955751	5/2+
187	Ta	-ve beta	-36.878	186.96041	?-
187	Tl	positron	-22.197	186.976171	1/2+
187	W	-ve beta	-39.907	186.957158	3/2-
188	Au	positron	-32.523	187.965085	1-
188	Hg	positron	-30.225	187.967552	0+
188	Ir	positron	-38.3294	187.958852	1-
188	Os	13.3	-41.1388	187.955836	0+
188	Pb	electron capture	-17.642	187.981061	0+
188	Pt	electron capture	-37.8229	187.959396	0+
188	Re	-ve beta	-39.0184	187.958112	1-
188	W	-ve beta	-38.6694	187.958487	0+
189	Au	positron	-33.635	188.963892	1/2+
189	Bi	proton	-9.774	188.989507	9/2-
189	Hg	positron	-29.685	188.968132	3/2-
189	Ir	electron capture	-38.4557	188.958716	3/2+
189	Os	16.1	-38.9881	188.958145	3/2-
189	Pb	positron	-17.81	188.98088	?-
189	Pt	positron	-36.4852	188.960832	3/2-
189	Re	-ve beta	-37.9789	188.959228	5/2+
189	Tl	positron	-24.509	188.973689	1/2+
189	W	-ve beta	-35.4789	188.961912	3/2-
190	Au	positron	-32.8832	189.964699	1-
190	Hg	positron	-31.409	189.966281	0+
190	Ir	-ve beta	-36.7084	189.960592	4+
190	Os	26.4	-38.7084	189.958445	0+
190	Pb	electron capture	-20.326	189.978179	0+
190	Po	electron capture	-4.556	189.995109	0+
190	Pt	0.01	-37.3252	189.95993	0+

190	Re	-ve beta	-35.5578	189.961827	2-
190	W	-ve beta	-34.2878	189.963191	0+
191	Au	positron	-33.8608	190.963649	3/2+
191	Bi	proton	-12.991	190.986054	9/2-
191	Hg	positron	-30.6808	190.967063	3/2-
191	Ir	37.3	-36.7095	190.960591	3/2+
191	Os	-ve beta	-36.3957	190.960928	9/2-
191	Pb	positron	-20.307	190.9782	3/2-
191	Po	positron	-5.139	190.994483	?-
191	Pt	electron capture	-35.6908	190.961685	3/2-
191	Re	-ve beta	-34.3505	190.963124	3/2+
191	Tl	positron	-26.188	190.971886	1/2+
192	Au	positron	-32.7796	191.96481	1-
192	Bi	positron	-13.629	191.985369	3+
192	Hg	electron capture	-32.068	191.965574	0+
192	Ir	-ve beta	-34.8362	191.962602	4+
192	Os	41	-35.8824	191.961479	0+
192	Pb	electron capture	-22.579	191.975761	0+
192	Po	positron	-7.898	191.991521	0+
192	Pt	0.79	-36.2959	191.961035	0+
192	Re	-ve beta	-31.708	191.96596	12-
193	Au	positron	-33.4116	192.964131	3/2+
193	Bi	positron	-15.779	192.983061	9/2-
193	Hg	positron	-31.0713	192.966644	3/2-
193	Ir	62.7	-34.5368	192.962924	3/2+
193	Os	-ve beta	-33.3962	192.964148	3/2-
193	Pb	positron	-22.281	192.976081	3/2-
193	Po	positron	-8.289	192.991101	?-
193	Pt	electron capture	-34.4801	192.962984	1/2-
193	Re	-ve beta	-30.301	192.967471	?-
193	Tl	positron	-27.432	192.970551	1/2+
194	At	proton	-0.77	193.999173	?-
194	Au	positron	-32.2871	193.965339	1-
194	Bi	positron	-16.066	193.982753	3+
194	Hg	electron capture	-32.2471	193.965382	0+
194	Ir	-ve beta	-32.5323	193.965075	1-
194	Os	-ve beta	-32.4357	193.965179	0+
194	Pb	positron	-24.247	193.97397	0+
194	Po	positron	-10.9141	193.988283	0+
194	Pt	32.9	-34.7792	193.962663	0+
194	Tl	positron	-26.965	193.971052	2-
195	At	proton	-3.166	194.996601	?-
195	Au	electron capture	-32.5861	194.965018	3/2+
195	Bi	positron	-17.93	194.980752	9/2-
195	Hg	positron	-31.0761	194.966639	1/2-
195	Ir	-ve beta	-31.6928	194.965977	3/2+
195	Os	-ve beta	-29.6928	194.968124	5/2-
195	Pb	positron	-23.78	194.974471	3/2-
195	Po	positron	-11.136	194.988045	3/2-
195	Pt	33.8 00	-32.8129	194.964774	1/2-
195	Tl	positron	-28.274	194.969647	1/2+

196	At	positron	-4.002	195.995704	11-
196	Au	-ve beta	-31.1577	195.966551	2-
196	Bi	positron	-18.0626	195.980609	3+
196	Hg	0.15	-31.8436	195.965815	0+
196	Ir	-ve beta	-29.4544	195.96838	0-
196	Os	-ve beta	-28.2969	195.969622	0+
196	Pb	positron	-25.42	195.972711	0+
196	Po	positron	-13.498	195.985509	0+
196	Pt	25.3	-32.6635	195.964935	0+
196	Tl	positron	-27.467	195.970513	2-
197	At	positron	-6.251	196.993289	9/2-
197	Au	100	-31.1575	196.966551	3/2+
197	Bi	positron	-19.6201	196.978937	9/2-
197	Hg	electron capture	-30.5577	196.967195	1/2-
197	Ir	-ve beta	-28.2839	196.969636	3/2+
197	Pb	positron	-24.796	196.973381	3/2-
197	Po	positron	-13.445	196.985566	3/2-
197	Pt	-ve beta	-30.4386	196.967323	1/2-
197	Tl	positron	-28.3749	196.969539	1/2+
198	At	positron	-6.748	197.992756	3+
198	Au	-ve beta	-29.5984	197.968225	2-
198	Bi	positron	-19.5404	197.979023	2+
198	Hg	9.97	-30.9708	197.966752	0+
198	Ir	-ve beta	-25.821	197.97228	4-
198	Pb	positron	-26.1	197.971981	0+
198	Po	positron	-15.513	197.983346	0+
198	Pt	7.2	-29.9238	197.967876	0+
198	Rn	positron	-1.1446	197.998771	0+
198	Tl	positron	-27.5108	197.970466	2-
199	At	positron	-8.726	198.990632	9/2-
199	Au	-ve beta	-29.1109	198.968748	3/2+
199	Bi	positron	-20.8906	198.977573	9/2-
199	Hg	16.9	-29.5635	198.968263	1/2-
199	Pb	positron	-25.2355	198.972909	3/2-
199	Po	positron	-15.281	198.983595	3/2-
199	Pt	-ve beta	-27.4086	198.970576	5/2-
199	Rn	positron	-1.575	198.998309	3/2-
199	Tl	positron	-28.1188	198.969813	1/2+
200	At	positron	-9.0412	199.990294	3+
200	Au	-ve beta	-27.2763	199.970718	1-
200	Bi	positron	-20.3618	199.978141	7+
200	Hg	23.1	-29.5204	199.968309	0+
200	Pb	electron capture	-26.254	199.971815	0+
200	Po	positron	-17.014	199.981735	0+
200	Pt	-ve beta	-26.619	199.971424	0+
200	Rn	positron	-4.029	199.995675	0+
200	Tl	positron	-27.0644	199.970945	2-
201	At	positron	-10.7218	200.98849	9/2-
201	Au	-ve beta	-26.4044	200.971654	3/2+
201	Bi	positron	-21.4498	200.976973	9/2-
201	Fr	proton	3.712	201.003985	9/2-

201	Hg	13.2	-27.6793	200.970285	3/2-
201	Pb	positron	-25.2936	200.972846	5/2-
201	Po	positron	-16.572	200.982209	3/2-
201	Pt	-ve beta	-23.7444	200.97451	5/2-
201	Rn	positron	-4.159	200.995535	3/2-
201	Tl	electron capture	-27.1965	200.970804	1/2+
202	At	positron	-10.7621	201.988447	2+
202	Au	-ve beta	-24.4161	201.973788	1-
202	Bi	positron	-20.7928	201.977678	5+
202	Fr	positron	3.065	202.00329	3+
202	Hg	29.9	-27.3623	201.970626	0+
202	Pb	electron capture	-25.9482	201.972144	0+
202	Po	positron	-17.975	201.980703	0+
202	Rn	positron	-6.314	201.993222	0+
202	Tl	positron	-25.9979	201.97209	2-
203	At	positron	-12.2556	202.986843	9/2-
203	Au	-ve beta	-23.1446	202.975153	3/2+
203	Bi	positron	-21.5477	202.976868	9/2-
203	Fr	proton	0.976	203.001048	9/2-
203	Hg	-ve beta	-25.2839	202.972857	5/2-
203	Pb	electron capture	-24.8007	202.973376	5/2-
203	Po	positron	-17.3146	202.981412	5/2-
203	Rn	positron	-6.227	202.993315	3/2-
203	Tl	29.5	-25.7757	202.972329	1/2+
204	At	positron	-11.8674	203.98726	7+
204	Au	-ve beta	-20.907	203.977556	2-
204	Bi	positron	-20.6862	203.977793	6+
204	Fr	positron	0.5538	204.000595	3+
204	Hg	6.87	-24.7075	203.973476	0+
204	Pb	1.4	-25.1239	203.973029	0+
204	Po	positron	-18.3442	203.980307	0+
204	Ra	positron	6.046	204.006491	0+
204	Rn	positron	-8.043	203.991366	0+
204	Tl	-ve beta	-24.3602	203.973848	2-
205	At	positron	-13.0053	204.986038	9/2-
205	Bi	positron	-21.0757	204.977374	9/2-
205	Fr	positron	-1.2416	204.998667	9/2-
205	Hg	-ve beta	-22.3039	204.976056	1/2-
205	Pb	electron capture	-23.7841	204.974467	5/2-
205	Po	positron	-17.5447	204.981165	5/2-
205	Ra	positron	5.772	205.006196	?-
205	Rn	positron	-7.761	204.991668	5/2-
205	Tl	70.5	-23.8353	204.974412	1/2+
206	At	positron	-12.4795	205.986603	5+
206	Bi	positron	-20.0433	205.978483	6+
206	Fr	positron	-1.4116	205.998485	2+
206	Hg	-ve beta	-20.9595	205.977499	0+
206	Pb	24.1	-23.8008	205.974449	0+
206	Po	positron	-18.1969	205.980465	0+
206	Ra	positron	3.526	206.003785	0+
206	Rn	positron	-9.166	205.99016	0+

206	Tl	-ve beta	-22.2676	205.976095	0-
207	At	positron	-13.2502	206.985775	9/2-
207	Bi	positron	-20.0685	206.978456	9/2-
207	Fr	positron	-2.9295	206.996855	9/2-
207	Hg	-ve beta	-16.2695	206.982534	9/2+
207	Pb	22.1	-22.4673	206.975881	1/2-
207	Po	positron	-17.1599	206.981578	5/2-
207	Ra	positron	3.471	207.003726	5/2-
207	Rn	positron	-8.6387	206.990726	5/2-
207	Tl	-ve beta	-21.0445	206.977408	1/2+
208	At	positron	-12.5102	207.98657	6+
208	Bi	positron	-18.8841	207.979727	5+
208	Fr	positron	-2.6714	207.997132	7+
208	Pb	52.4	-21.7638	207.976636	0+
208	Po	positron	-17.4835	207.981231	0+
208	Ra	positron	1.655	208.001777	0+
208	Rn	positron	-9.6588	207.989631	0+
208	Tl	-ve beta	-16.7628	207.982005	5+
209	Ac	positron	8.9166	209.009572	9/2-
209	At	positron	-12.8935	208.986158	9/2-
209	Bi	100	-18.2725	208.980384	9/2-
209	Fr	positron	-3.803	208.995917	9/2-
209	Pb	-ve beta	-17.6284	208.981075	9/2+
209	Po	positron	-16.3799	208.982416	1/2-
209	Ra	positron	1.811	209.001944	5/2-
209	Rn	positron	-8.9645	208.990376	5/2-
209	Tl	-ve beta	-13.648	208.985348	1/2+
210	Ac	positron	8.6206	210.009255	7-
210	At	positron	-11.987	209.987132	5+
210	Bi	-ve beta	-14.8058	209.984105	1-
210	Fr	positron	-3.3513	209.996402	6+
210	Pb	-ve beta	-14.7423	209.984174	0+
210	Po	alpha	-15.9685	209.982857	0+
210	Ra	positron	0.416	210.000447	0+
210	Rn	positron	-9.6135	209.98968	0+
210	Tl	-ve beta	-9.2583	209.990061	5+
211	Ac	positron	7.1202	211.007644	9/2-
211	At	electron capture	-11.6612	210.987481	9/2-
211	Bi	-ve beta	-11.869	210.987258	9/2-
211	Fr	positron	-4.1649	210.995529	9/2-
211	Pb	-ve beta	-10.4964	210.988732	9/2+
211	Po	alpha	-12.4479	210.986637	9/2+
211	Ra	positron	0.832	211.000893	5/2-
211	Rn	positron	-8.7697	210.990585	1/2-
212	Ac	positron	7.2747	212.00781	7-
212	At	-ve beta	-8.6302	211.990735	1-
212	Bi	-ve beta	-8.1308	211.991271	1-
212	Fr	positron	-3.5562	211.996182	5+
212	Pb	-ve beta	-7.5571	211.991887	0+
212	Po	alpha	-10.3847	211.988852	0+
212	Ra	positron	-0.202	211.999783	0+

212	Rn	alpha	-8.6736	211.990689	0+
212	Th	positron	12.032	212.012917	0+
213	Ac	positron	6.1251	213.006576	9/2-
213	At	electron capture	-6.5935	212.992922	9/2-
213	Bi	-ve beta	-5.2406	212.994374	9/2-
213	Fr	positron	-3.5635	212.996174	9/2-
213	Pb	-ve beta	-3.171	212.996596	9/2+
213	Po	alpha	-6.6669	212.992843	9/2+
213	Ra	positron	0.3199	213.000343	1/2-
213	Rn	electron capture	-5.7119	212.993868	9/2+
213	Th	positron	12.074	213.012962	5/2-
214	Ac	positron	6.4245	214.006897	5-
214	At	-ve beta	-3.3936	213.996357	1-
214	Bi	-ve beta	-1.2122	213.998699	1-
214	Fr	positron	-0.9746	213.998954	1-
214	Pb	-ve beta	-0.189	213.999797	0+
214	Po	alpha	-4.4839	213.995186	0+
214	Ra	positron	0.0845	214.000091	0+
214	Rn	alpha	-4.3351	213.995346	0+
214	Th	positron	10.666	214.01145	0+
215	Ac	positron	6.0084	215.00645	9/2-
215	At	alpha	-1.2658	214.998641	9/2-
215	Bi	-ve beta	1.707	215.001833	9/2-
215	Fr	positron	0.304	215.000326	9/2-
215	Pa	positron	17.7124	215.019015	9/2-
215	Po	-ve beta	-0.5451	214.999415	9/2+
215	Ra	positron	2.5189	215.002704	9/2+
215	Rn	electron capture	-1.184	214.998729	9/2+
215	Th	positron	10.9225	215.011726	1/2-
216	Ac	positron	8.112	216.008709	1-
216	At	-ve beta	2.2435	216.002408	1-
216	Bi	-ve beta	5.774	216.006199	?-
216	Fr	positron	2.9698	216.003188	1-
216	Pa	positron	17.7133	216.019016	5-
216	Po	alpha	1.7743	216.001905	0+
216	Ra	electron capture	3.277	216.003518	0+
216	Rn	alpha	0.2402	216.000258	0+
216	Th	positron	10.2935	216.01105	0+
217	Ac	positron	8.693	217.009332	9/2-
217	At	-ve beta	4.3862	217.004709	9/2-
217	Fr	electron capture	4.3006	217.004617	9/2-
217	Pa	positron	17.0377	217.018291	9/2-
217	Po	-ve beta	5.914	217.006349	9/2-
217	Ra	positron	5.8737	217.006306	9/2+
217	Rn	alpha	3.6466	217.003915	9/2+
217	Th	positron	12.1688	217.013064	9/2+
218	Ac	positron	10.8277	218.011624	9-
218	At	-ve beta	8.0867	218.008681	2-
218	Fr	-ve beta	7.0456	218.007564	1-
218	Pa	positron	18.6435	218.020014	9-
218	Po	-ve beta	8.3506	218.008965	0+

218	Ra	alpha	6.6357	218.007124	0+
218	Rn	alpha	5.2036	218.005586	0+
218	Th	positron	12.3585	218.013267	0+
218	U	positron	21.878	218.023487	0+
219	Ac	positron	11.5555	219.012405	9/2-
219	At	-ve beta	10.5228	219.011297	9/2-
219	Fr	alpha	8.6077	219.009241	9/2-
219	Pa	positron	18.5179	219.01988	9/2-
219	Ra	electron capture	9.3713	219.01006	7/2+
219	Rn	-ve beta	8.8259	219.009475	5/2+
219	Th	positron	14.4579	219.015521	9/2-
219	U	positron	23.247	219.024956	?-
220	Ac	positron	13.7419	220.014752	9-
220	At	-ve beta	14.252	220.0153	9-
220	Fr	-ve beta	11.4691	220.012312	1+
220	Pa	positron	20.366	220.021864	9-
220	Ra	alpha	10.2599	220.011014	0+
220	Rn	alpha	10.6039	220.011384	0+
220	Th	electron capture	14.6549	220.015733	0+
220	U	positron	23.018	220.024711	0+
221	Ac	positron	14.5084	221.015575	9/2-
221	At	-ve beta	16.6725	221.017899	?-
221	Fr	-ve beta	13.2692	221.014245	5/2-
221	Pa	positron	20.3656	221.021863	9/2-
221	Ra	alpha	12.9573	221.01391	5/2+
221	Rn	-ve beta	14.486	221.015551	7/2+
221	Th	positron	16.9263	221.018171	7/2+
221	U	positron	24.544	221.026349	?-
222	Ac	positron	16.5991	222.01782	1-
222	Fr	-ve beta	16.3408	222.017542	2-
222	Pa	positron	22.05	222.023671	9-
222	Ra	alpha	14.309	222.015361	0+
222	Rn	-ve beta	16.3659	222.017569	0+
222	Th	electron capture	17.1897	222.018454	0+
222	U	positron	24.283	222.026069	0+
223	Ac	electron capture	17.8159	223.019126	5/2-
223	At	neutron	23.3956	223.025116	?-
223	Fr	-ve beta	18.3792	223.019731	3/2-
223	Pa	positron	22.3229	223.023964	9/2-
223	Ra	alpha	17.2301	223.018497	3/2+
223	Rn	-ve beta	20.1833	223.021667	7/2-
223	Th	positron	19.3629	223.020787	5/2+
223	U	positron	25.8237	223.027723	?-
224	Ac	-ve beta	20.2209	224.021708	0-
224	Fr	-ve beta	21.6367	224.023228	1-
224	Pa	positron	23.8616	224.025616	9-
224	Ra	alpha	18.8177	224.020201	0+
224	Rn	-ve beta	22.461	224.024113	0+
224	Th	alpha	19.9889	224.021459	0+
224	U	positron	25.6997	224.02759	0+
225	Ac	alpha	21.6293	225.02322	3/2-

225	Fr	-ve beta	23.8515	225.025605	3/2-
225	Np	positron	31.577	225.033899	?-
225	Pa	positron	24.3258	225.026115	9/2-
225	Ra	-ve beta	21.9859	225.023603	1/2+
225	Rn	-ve beta	26.5368	225.028488	7/2-
225	Th	electron capture	22.3038	225.023944	3/2+
225	U	positron	27.371	225.029384	?-
226	Ac	-ve beta	24.3018	226.026089	1-
226	Fr	-ve beta	27.295	226.029302	1-
226	Np	positron	32.672	226.035075	?-
226	Pa	positron	26.0108	226.027924	9-
226	Ra	alpha	23.6614	226.025401	0+
226	Rn	-ve beta	29.0206	226.031155	0+
226	Th	alpha	23.1854	226.02489	0+
226	U	positron	27.3212	226.02933	0+
227	Ac	-ve beta	25.8463	227.027747	3/2-
227	Fr	-ve beta	29.6576	227.031838	1/2+
227	Np	positron	32.5642	227.034959	?-
227	Pa	electron capture	26.8208	227.028793	5/2-
227	Ra	-ve beta	27.1714	227.029169	3/2+
227	Rn	-ve beta	33.1603	227.035599	?-
227	Th	alpha	25.8015	227.027699	1/2+
227	U	positron	28.9991	227.031132	3/2+
228	Ac	-ve beta	28.8893	228.031014	3+
228	Fr	-ve beta	33.2731	228.03572	2-
228	Np	positron	33.701	228.036179	?-
228	Pa	positron	28.8741	228.030997	3+
228	Ra	-ve beta	28.9352	228.031063	0+
228	Th	alpha	26.7627	228.028731	0+
228	U	electron capture	29.2173	228.031366	0+
229	Ac	-ve beta	30.6737	229.032929	3/2+
229	Fr	-ve beta	36.1594	229.038818	1/2+
229	Np	positron	33.7634	229.036246	7/2-
229	Pa	electron capture	29.8948	229.032093	5/2+
229	Ra	-ve beta	32.4337	229.034819	5/2+
229	Th	alpha	29.5787	229.031754	5/2+
229	U	positron	31.2039	229.033498	3/2+
230	Ac	-ve beta	33.5563	230.036024	1+
230	Fr	-ve beta	40.0112	230.042953	?-
230	Np	positron	35.2138	230.037803	9-
230	Pa	-ve beta	32.1661	230.034531	2-
230	Pu	positron	36.921	230.039636	0+
230	Ra	-ve beta	34.5433	230.037083	0+
230	Th	alpha	30.8563	230.033125	0+
230	U	alpha	31.6031	230.033927	0+
231	Ac	-ve beta	35.9096	231.03855	1/2+
231	Fr	-ve beta	43.0245	231.046188	?-
231	Np	positron	35.6141	231.038233	5/2-
231	Pa	alpha	33.4201	231.035878	3/2-
231	Pu	positron	38.424	231.04125	?-
231	Ra	-ve beta	38.5615	231.041397	7/2+

231	Th	-ve beta	33.8096	231.036296	5/2+
231	U	electron capture	33.7777	231.036262	5/2-
232	Ac	-ve beta	39.1429	232.042021	1+
232	Am	positron	43.4367	232.046631	?-
232	Np	positron	37.299	232.040042	4+
232	Pa	-ve beta	35.9383	232.038581	2-
232	Pu	positron	38.3582	232.041179	0+
232	Ra	-ve beta	41.0915	232.044113	0+
232	Th	100	35.4429	232.038049	0+
232	U	alpha	34.6012	232.037146	0+
233	Ac	-ve beta	41.6032	233.044663	1/2+
233	Am	positron	43.288	233.046471	?-
233	Np	positron	38.146	233.040951	5/2+
233	Pa	-ve beta	37.4826	233.040239	3/2-
233	Pu	positron	40.0451	233.04299	11/2-
233	Th	-ve beta	38.7279	233.041576	1/2+
233	U	alpha	36.9121	233.039626	5/2+
234	Ac	-ve beta	45.1992	234.048523	?-
234	Am	positron	44.511	234.047784	?-
234	Np	positron	39.9496	234.042887	0+
234	Pa	-ve beta	40.3367	234.043303	4+
234	Pu	electron capture	40.3379	234.043304	0+
234	Ra	neutron	47.9993	234.051529	0+
234	Th	-ve beta	40.6098	234.043596	0+
234	U	0	38.1397	234.040944	0+
235	Am	positron	44.739	235.048029	?-
235	Cm	positron	48.049	235.051582	?-
235	Np	electron capture	41.0369	235.044055	5/2+
235	Pa	-ve beta	42.3232	235.045435	3/2-
235	Pu	positron	42.204	235.045307	5/2+
235	Th	-ve beta	44.251	235.047505	1/2+
235	U	0.72	40.9132	235.043922	7/2-
236	Am	positron	46.173	236.049568	?-
236	Cm	positron	47.883	236.051404	0+
236	Np	-ve beta	43.3798	236.04657	6-
236	Pa	-ve beta	45.3398	236.048674	1-
236	Pu	alpha	42.8932	236.046047	0+
236	Th	-ve beta	46.7058	236.05014	0+
236	U	alpha	42.4398	236.045561	0+
237	Am	positron	46.817	237.05026	5/2-
237	Bk	positron	53.213	237.057126	?-
237	Cm	positron	49.27	237.052893	11/2-
237	Np	alpha	44.8667	237.048166	5/2+
237	Pa	-ve beta	47.6352	237.051138	1/2+
237	Pu	electron capture	45.087	237.048402	7/2-
237	U	-ve beta	45.3852	237.048723	1/2+
238	Am	positron	48.4162	238.051977	1+
238	Bk	positron	54.336	238.058332	?-
238	Cm	electron capture	49.3843	238.053016	0+
238	Np	-ve beta	47.4499	238.050939	2+
238	Pa	-ve beta	50.7645	238.054497	3-

238	Pu	alpha	46.1578	238.049552	0+
238	U	99.3	47.3045	238.050783	0+
239	Am	electron capture	49.3855	239.053017	5/2-
239	Bk	positron	54.364	239.058362	7/2+
239	Cf	positron	58.284	239.06257	11/2-
239	Cm	positron	51.086	239.054843	7/2-
239	Np	-ve beta	49.3044	239.05293	5/2+
239	Pu	alpha	48.5826	239.052155	1/2+
239	U	-ve beta	50.5696	239.054288	5/2+
240	Am	positron	51.4994	240.055286	3-
240	Bk	positron	55.655	240.059748	?-
240	Cf	positron	58.027	240.062294	0+
240	Cm	electron capture	51.7153	240.055518	0+
240	Np	-ve beta	52.3201	240.056167	5+
240	Pu	alpha	50.1205	240.053806	0+
240	U	-ve beta	52.7084	240.056584	0+
241	Am	alpha	52.9294	241.056822	5/2-
241	Bk	positron	56.097	241.060222	7/2+
241	Cf	positron	59.354	241.063719	11/2-
241	Cm	electron capture	53.6969	241.057646	1/2+
241	Es	positron	63.902	241.068601	?-
241	Np	-ve beta	54.2552	241.058245	5/2+
241	Pu	-ve beta	52.9502	241.056844	5/2+
242	Am	-ve beta	55.4631	242.059542	1-
242	Bk	positron	57.798	242.062048	9-
242	Cf	positron	59.3255	242.063688	0+
242	Cm	alpha	54.7983	242.058828	0+
242	Es	positron	64.943	242.069719	?-
242	Fm	positron	68.3531	242.073379	0+
242	Np	-ve beta	57.4121	242.061634	1+
242	Pu	alpha	54.7121	242.058735	0+
242	U	neutron	58.83	242.063156	0+
243	Am	alpha	57.1674	243.061371	5/2-
243	Bk	positron	58.6847	243.063	3/2-
243	Cf	positron	60.901	243.065379	1/2+
243	Cm	electron capture	57.1763	243.061381	5/2+
243	Es	positron	64.861	243.069631	7/2-
243	Fm	positron	69.398	243.074501	11/2-
243	Np	-ve beta	59.9187	243.064325	5/2-
243	Pu	-ve beta	57.7489	243.061995	7/2+
244	Am	-ve beta	59.875	244.064278	6-
244	Bk	positron	60.7026	244.065166	1-
244	Cf	electron capture	61.4693	244.065989	0+
244	Cm	alpha	58.447	244.062745	0+
244	Es	positron	66.027	244.070882	9-
244	Fm	positron	69.052	244.07413	0+
244	Np	-ve beta	63.4495	244.068115	7-
244	Pu	alpha	59.7988	244.064196	0+
245	Am	-ve beta	61.8925	245.066444	5/2+
245	Bk	electron capture	61.8088	245.066354	3/2-
245	Cf	positron	63.3774	245.068038	5/2+

245	Cm	alpha	60.9986	245.065484	7/2+
245	Es	positron	66.431	245.071316	3/2-
245	Fm	positron	70.214	245.075377	11/2-
245	Pu	-ve beta	63.0972	245.067737	9/2-
246	Am	-ve beta	64.988	246.069767	7-
246	Bk	positron	63.9618	246.068665	2-
246	Cf	electron capture	64.0848	246.068797	0+
246	Cm	alpha	62.6118	246.067216	0+
246	Es	positron	67.965	246.072963	4+
246	Fm	positron	70.1243	246.075281	0+
246	Pu	-ve beta	65.3885	246.070197	0+
247	Am	-ve beta	67.227	247.072171	5/2-
247	Bk	alpha	65.4818	247.070297	3/2-
247	Cf	electron capture	66.1278	247.070991	7/2+
247	Cm	-ve beta	65.5267	247.070345	9/2-
247	Es	positron	68.603	247.073648	7/2+
247	Fm	positron	71.517	247.076776	11/2-
247	Md	positron	76.103	247.081699	?-
247	Pu	-ve beta	69.4049	247.074509	?-
248	Am	-ve beta	70.485	248.075668	?-
248	Bk	-ve beta	68.1026	248.073111	1-
248	Cf	alpha	67.2326	248.072177	0+
248	Cm	alpha	67.3855	248.072341	0+
248	Es	positron	70.2932	248.075462	2+
248	Fm	positron	71.8965	248.077183	0+
248	Md	positron	77.149	248.082822	?-
249	Bk	-ve beta	69.8434	249.074979	7/2+
249	Cf	alpha	69.7185	249.074845	9/2-
249	Cm	-ve beta	70.7433	249.075945	1/2+
249	Es	positron	71.17	249.076404	7/2+
249	Fm	positron	73.61	249.079023	7/2+
249	Md	positron	77.315	249.083	?-
250	Bk	-ve beta	72.9448	250.078309	2-
250	Cf	alpha	71.1651	250.076398	0+
250	Cm	-ve beta	72.9823	250.078349	0+
250	Es	positron	73.265	250.078653	6+
250	Fm	electron capture	74.0667	250.079513	0+
250	Md	positron	78.699	250.084486	?-
251	Bk	-ve beta	75.2204	251.080752	3/2-
251	Cf	alpha	74.1274	251.079578	1/2+
251	Cm	-ve beta	76.6404	251.082276	1/2+
251	Es	electron capture	74.5036	251.079982	3/2-
251	Fm	positron	75.9778	251.081565	9/2-
251	Md	positron	79.051	251.084864	?-
251	No	positron	82.827	251.088918	7/2-
252	Bk	-ve beta	78.527	252.084302	?-
252	Cf	alpha	76.0272	252.081618	0+
252	Es	-ve beta	77.2872	252.082971	5-
252	Fm	alpha	76.8102	252.082458	0+
252	Md	positron	80.695	252.086629	?-
252	No	positron	82.8709	252.088965	0+

253	Bk	-ve beta	80.798	253.08674	?-
253	Cf	-ve beta	79.2926	253.085123	7/2+
253	Es	alpha	79.0075	253.084817	7/2+
253	Fm	electron capture	79.3403	253.085175	1/2+
253	Lr	positron	88.732	253.095257	3/2-
253	Md	positron	81.301	253.08728	?-
253	No	positron	84.478	253.09069	9/2-
254	Cf	-ve beta	81.3336	254.087315	0+
254	Es	-ve beta	81.9877	254.088017	7+
254	Fm	alpha	80.8972	254.086846	0+
254	Lr	positron	89.87	254.096479	2-
254	Md	positron	83.58	254.089726	?-
254	No	positron	84.7174	254.090947	0+
255	Cf	-ve beta	84.781	255.091015	9/2+
255	Es	-ve beta	84.0809	255.090264	7/2+
255	Fm	alpha	83.7929	255.089955	7/2+
255	Lr	positron	90.09	255.096715	3/2-
255	Md	positron	84.8354	255.091074	?-
255	No	positron	86.8473	255.093234	1/2+
256	Es	-ve beta	87.149	256.093558	1+
256	Fm	alpha	85.4791	256.091765	0+
256	Lr	positron	92.005	256.098771	2-
256	Md	positron	87.6087	256.094051	0-
256	No	electron capture	87.8165	256.094274	0+
257	Es	-ve beta	89.395	257.095969	?-
257	Fm	alpha	88.5814	257.095095	9/2+
257	Lr	positron	92.732	257.099551	9/2+
257	Md	electron capture	88.99	257.095534	7/2-
257	No	positron	90.2169	257.096851	7/2+
258	Fm	-ve beta	90.459	258.097111	0+
258	Lr	positron	94.905	258.101884	?-
258	Md	-ve beta	91.6838	258.098426	1-
258	No	alpha	91.522	258.098252	0+
259	Fm	-ve beta	93.699	259.100589	?-
259	Lr	positron	95.934	259.102989	?-
259	Md	alpha	93.616	259.1005	7/2-
259	No	electron capture	94.123	259.101044	9/2+
260	Lr	positron	98.339	260.10557	?-
260	Md	-ve beta	96.596	260.103699	?-
260	No	alpha	95.604	260.102634	0+
261	Lr	positron	99.615	261.10694	?-
261	Md	-ve beta	98.403	261.105639	?-
261	No	-ve beta	98.496	261.105739	?-
262	Lr	positron	102.297	262.109819	?-
262	No	-ve beta	100.201	262.107569	0+
263	Lr	electron capture	103.768	263.111399	?-
263	No	-ve beta	103.2	263.110789	?-
264	Lr	-ve beta	106.498	264.114329	?-
265	Lr	alpha	108.202	265.116159	?-