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The Unification of Coulomb's Electrostatic Law with Newton's Gravitational Law–A Generalised Model

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Supplementary

Atomic Number	Symbol	Name	Atomic Mass (amu, g/mol)	Atomic Number	Gatomic
1	H	Hydrogen	1.00797	1	1.51E+29
2	He	Helium	4.0026	2	7.62E+28
3	Li	Lithium	6.941	3	6.59E+28
4	Be	Beryllium	9.01218	4	6.77E+28
5	B	Boron	10.81	5	7.05E+28
6	C	Carbon	12.011	6	7.62E+28
7	N	Nitrogen	14.0067	7	7.62E+28
8	O	Oxygen	15.9994	8	7.63E+28
9	F	Fluorine	18.9984	9	7.23E+28
10	Ne	Neon	20.179	10	7.56E+28
11	Na	Sodium	22.98977	11	7.30E+28
12	Mg	Magnesium	24.305	12	7.53E+28
13	Al	Aluminium	26.98154	13	7.35E+28
14	Si	Silicon	28.0855	14	7.60E+2

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15	P	Phosphorus	30.97376	15	7.39E+28
16	S	Sulfur	32.06	16	7.61E+28
17	Cl	Chlorine	35.453	17	7.31E+28
18	Ar	Argon	39.948	18	6.87E+28
19	K	Potassium	39.0983	19	7.41E+28
20	Ca	Calcium	40.08	20	7.61E+28
21	Sc	Scandium	44.9559	21	7.12E+28
22	Ti	Titanium	47.9	22	7.01E+28
23	V	Vanadium	50.9415	23	6.89E+28
24	Cr	Chromium	51.996	24	7.04E+28
25	Mn	Manganese	54.938	25	6.94E+28
26	Fe	Iron	55.847	26	7.10E+28
27	Co	Cobalt	58.9332	27	6.99E+28
28	Ni	Nickel	58.7	28	7.28E+28
29	Cu	Copper	63.546	29	6.96E+28
30	Zn	Zinc	65.38	30	7.00E+28
31	Ga	Gallium	69.72	31	6.78E+28
32	Ge	Germanium	72.59	32	6.72E+28
33	As	Arsenic	74.9216	33	6.72E+28
34	Se	Selenium	78.96	34	6.57E+28
35	Br	Bromine	79.904	35	6.68E+28
36	Kr	Krypton	83.8	36	6.55E+28
37	Rb	Rubidium	85.4678	37	6.60E+28
38	Sr	Strontium	87.62	38	6.61E+28

39	Y	Yttrium	88.9059	39	6.69E+28
40	Zr	Zirconium	91.22	40	6.69E+28
41	Nb	Niobium	92.9064	41	6.73E+28
42	Mo	Molybdenum	95.94	42	6.68E+28
43	Tc	Technetium	98	43	6.69E+28
44	Ru	Ruthenium	101.07	44	6.64E+28
45	Rh	Rhodium	102.9055	45	6.67E+28
46	Pd	Palladium	106.4	46	6.59E+28
47	Ag	Silver	107.868	47	6.65E+28
48	Cd	Cadmium	112.41	48	6.51E+28
49	In	Indium	114.82	49	6.51E+28
50	Sn	Tin	118.69	50	6.43E+28
51	Sb	Antimony	121.75	51	6.39E+28
52	Te	Tellurium	127.6	52	6.22E+28
53	I	Iodine	126.9045	53	6.37E+28
54	Xe	Xenon	131.3	54	6.27E+28
55	Cs	Caesium	132.9054	55	6.31E+28
56	Ba	Barium	137.33	56	6.22E+28
57	La	Lanthanum	138.9055	57	6.26E+28
58	Ce	Cerium	140.12	58	6.31E+28
59	Pr	Praseodymium	140.9077	59	6.39E+28
60	Nd	Neodymium	144.24	60	6.34E+28
61	Pm	Promethium	145	61	6.42E+28
62	Sm	Samarium	150.4	62	6.29E+28
63	Eu	Europium	151.96	63	6.32E+2

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64	Gd	Gadolinium	157.25	64	6.21E+28
65	Tb	Terbium	158.9254	65	6.24E+28
66	Dy	Dysprosium	162.5	66	6.19E+28
67	Ho	Holmium	164.9304	67	6.20E+28
68	Er	Erbium	167.26	68	6.20E+28
69	Tm	Thulium	168.9342	69	6.23E+28
70	Yb	Ytterbium	173.04	70	6.17E+28
71	Lu	Lutetium	174.967	71	6.19E+28
72	Hf	Hafnium	178.49	72	6.15E+28
73	Ta	Tantalum	180.9479	73	6.15E+28
74	W	Tungsten	183.85	74	6.14E+28
75	Re	Rhenium	186.207	75	6.14E+28
76	Os	Osmium	190.2	76	6.09E+28
77	Ir	Iridium	192.22	77	6.11E+28
78	Pt	Platinum	195.09	78	6.10E+28
79	Au	Gold	196.9665	79	6.12E+28
80	Hg	Mercury	200.59	80	6.08E+28
81	Tl	Thallium	204.37	81	6.04E+28
82	Pb	Lead	207.2	82	6.04E+28
83	Bi	Bismuth	208.9804	83	6.06E+28
84	Po	Polonium	209	84	6.13E+28
85	At	Astatine	210	85	6.17E+28
86	Rn	Radon	222	86	5.91E+28
87	Fr	Francium	223	87	5.95E+28

88	Ra	Radium	226.0254	88	5.94E+28
89	Ac	Actinium	227.0278	89	5.98E+28
90	Th	Thorium	232.0381	90	5.92E+28
91	Pa	Protactinium	231.0359	91	6.01E+28
92	U	Uranium	238.029	92	5.89E+28
93	Np	Neptunium	237.0482	93	5.98E+28
94	Pu	Plutonium	242	94	5.92E+28
95	Am	Americium	243	95	5.96E+28
96	Cm	Curium	247	96	5.93E+28
97	Bk	Berkelium	247	97	5.99E+28
98	Cf	Californium	251	98	5.95E+28
99	Es	Einsteinium	252	99	5.99E+28
100	Fm	Fermium	257	100	5.93E+28
101	Md	Mendeleviu m	258	101	5.97E+28
102	No	Nobelium	250	102	6.22E+28
103	Lr	Lawrencium	260	103	6.04E+28
104	Rf	Rutherfordiu m	261	104	6.08E+28
105	Db	Dubnium	262	105	6.11E+28
106	Sg	Seaborgium	263	106	6.15E+28
107	Bh	Bohrium	262	107	6.23E+28
108	Hs	Hassium	255	108	6.46E+28
109	Mt	Meitnerium	256	109	6.49E+28
110	Ds	Darmstadtiu m	269	110	6.24E+28
111	Rg	Röntgenium	272	111	6.22E+28
112	Uub	Ununbiium	277	112	6.17E+2

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Table 1. The Elements, sorted by Atomic number.

Atomic Number	Symbol	Name	Atomic Mass (amu, g/mol)	Atomic Number	Gf (Gatomic)
1	H	Hydrogen	1.00797	1	1.51E+29
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22	Ti	Titanium	47.9	22	7.01E+28
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27	Co	Cobalt	58.9332	27	6.99E+28
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31	Ga	Gallium	69.72	31	6.78E+28
4	Be	Beryllium	9.01218	4	6.77E+28
41	Nb	Niobium	92.9064	41	6.73E+28
32	Ge	Germanium	72.59	32	6.72E+28
33	As	Arsenic	74.9216	33	6.72E+28
43	Tc	Technetium	98	43	6.69E+28
39	Y	Yttrium	88.9059	39	6.69E+28
40	Zr	Zirconium	91.22	40	6.69E+28
35	Br	Bromine	79.904	35	6.68E+28
42	Mo	Molybdenum	95.94	42	6.68E+28
45	Rh	Rhodium	102.9055	45	6.67E+28
47	Ag	Silver	107.868	47	6.65E+28

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69	Tm	Thulium	168.9342	69	6.23E+28
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111	Rg	Röntgenium	272	111	6.22E+28
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93	Np	Neptunium	237.0482	93	5.98E+28
89	Ac	Actinium	227.0278	89	5.98E+28
101	Md	Mendelevium	258	101	5.97E+28
95	Am	Americium	243	95	5.96E+28
98	Cf	Californium	251	98	5.95E+28
87	Fr	Francium	223	87	5.95E+28
88	Ra	Radium	226.0254	88	5.94E+28
100	Fm	Fermium	257	100	5.93E+28
96	Cm	Curium	247	96	5.93E+28
94	Pu	Plutonium	242	94	5.92E+28
90	Th	Thorium	232.0381	90	5.92E+28
86	Rn	Radon	222	86	5.91E+28
92	U	Uranium	238.029	92	5.89E+28

Table 2. The Elements, sorted by Gf-Atomic (relative gravitational constant).

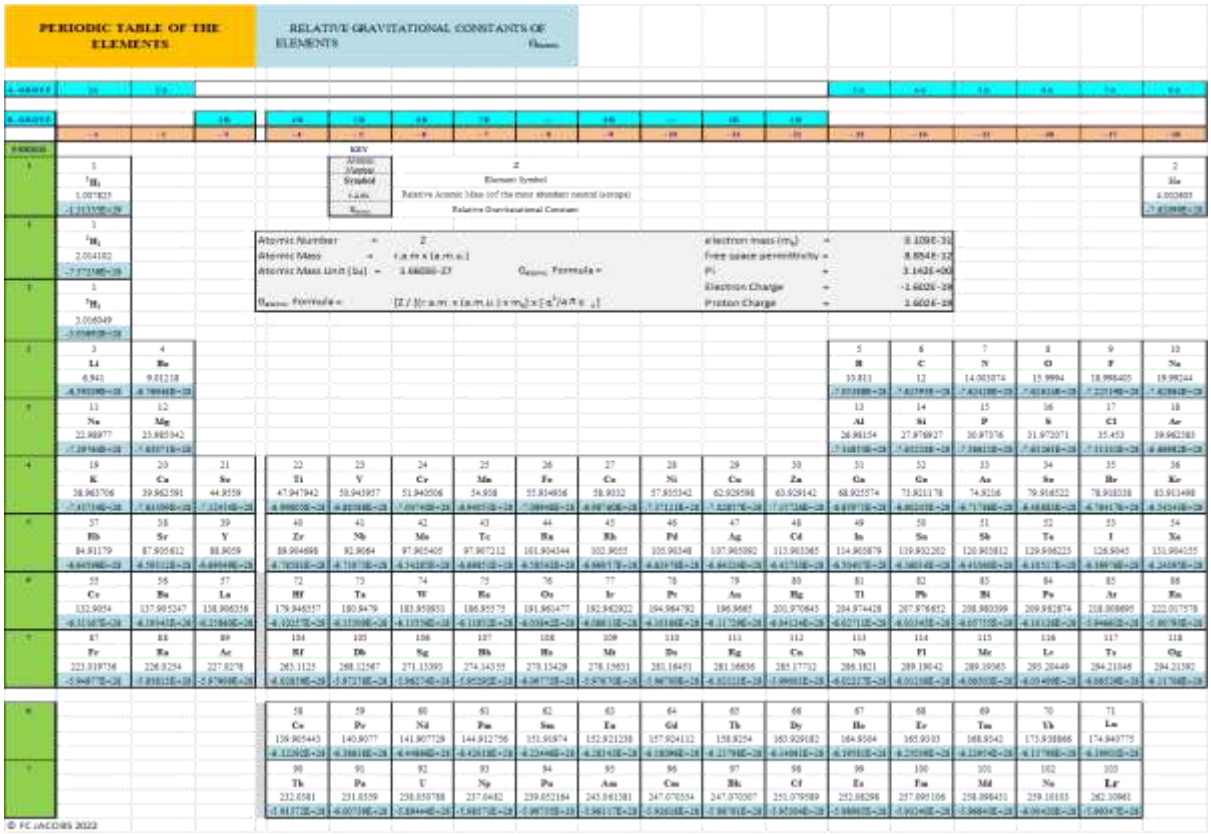

Figure 1. Trend of Relative Gravitational Constant *vs* Atomic Number.

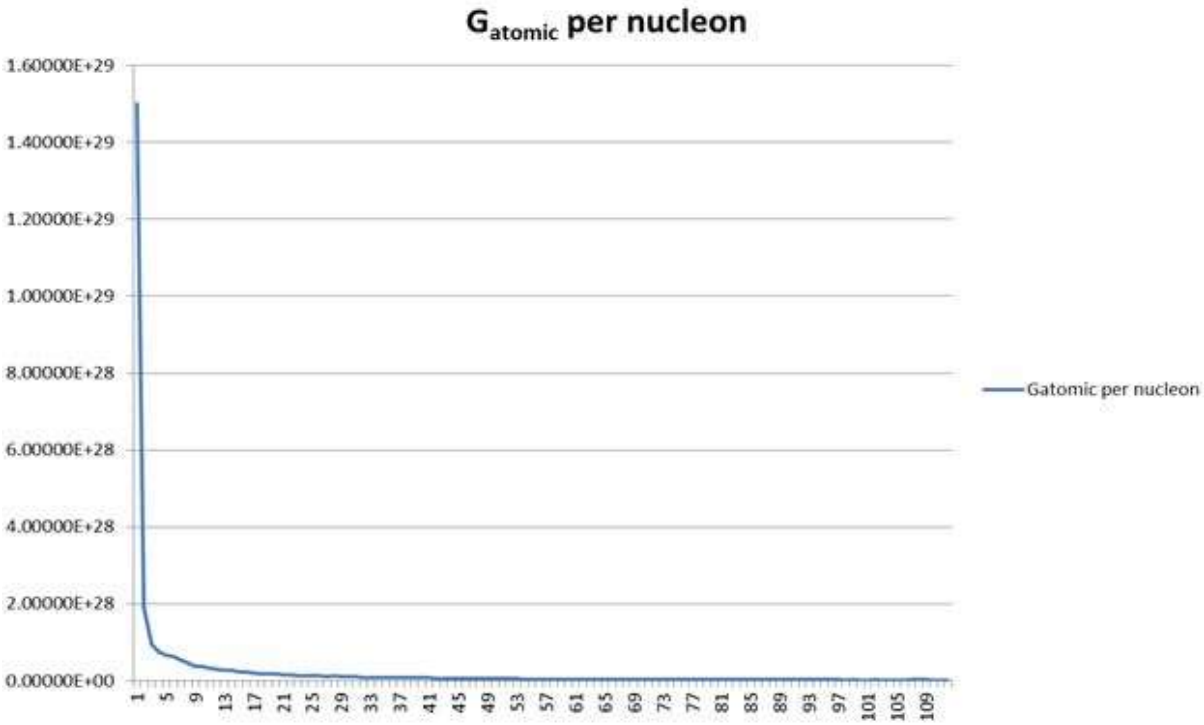

Figure 2. Trend of Relative Gravitational Constant per nucleon *vs* Atomic Number.