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The Best Periodic Table of the Elements

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ABSTRACT

Using the stable number theory[3] we make the best periodic table of the elements and obtain the best electron configurations of the elements.

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In studying the stability of the many-body problem we suggest two principles [1-9].

1. **The Prime Number Principle:** A prime number is irreducible in the integers; it seems therefore natural to associate it with the most stable subsystem. We prove that 1, 3, 5, 7, 11, 23, 47 are the most stable primes.
2. **The Symmetric Principle:** The most stable configuration of two prime numbers is then stable symmetric system in nature. We prove that 2, 4, 6, 10, 14, 22, 46, 94 are the most stable even numbers. The stability can be defined as long life and existence in nature, and instability as short life or non-existence in nature.

In this paper by using the prime number principle and the symmetric principle we make the new electron configurations of the elements. Total quantum number *n0020*and orbital quantum number l determine the new electron configurations of the elements

$n = 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6...$

Electron shells:

	K	*L*	*M*	*N*	*O*	*P*..
$2(2l+1) =$	2	6	10	14	18	22...

Electron subshells:

s *p* *d* *f* *g* *h*...

An atomic subshell that contains its full quota of electrons is said to be closed. A closed s subsell ($l = 0$) holds two electrons, a closed p subshed ($l = 1$) six electrons, a closed d subshell ($l = 2$) ten electrons, a closed f subshell ($l = 3$) fourteen electrons, these subshells are the most stable, a closed g subshell ($l = 4$) eighteen electrons are the most unstable. Using the symmetric principle it has been proved the $2(2l+1) = 2,6,10$ and 14 are stable and $2(2l+1) = 18$ is unstable. The *s p d*, and *f* subshells are stable and the *g* subshell is unstable.

Table 1 shows the best electron configurations of the elements. From 1 to 92 of the atomic numbers every subshell is stable. It has been proved that the last stable element that occurs naturally is uranium with an atomic number of 92 and there are only 92 stable elements in nature. Since 5g subshell is unstable, the elements 93-110 are unstable. Since 5g is unstable, 6s 6p, 6d 6f, 6g and 6h subshells are unstable. Therefore, the elements 111-182 are unstable.

Table 1: Jiang Electron Configuration of the Elements

Z	Sym	K	L		M			N				O				
		1s	2s	2p	3s	3p	3d	4s	4p	4d	4f	5s	5p	5d	5f	5g
1	H	1														
2	He	2														
3	Li	2	1													
4	Be	2	2													
5	B	2	2	1												
6	C	2	2	2												
7	N	2	2	3												
8	O	2	2	4												
9	F	2	2	5												
10	Ne	2	2	6												

11	Na	2	2	6	1											
12	Mg	2	2	6	2											
13	Al	2	2	6	2	1										
14	Si	2	2	6	2	2										
15	P	2	2	6	2	3										
16	S	2	2	6	2	4										
17	Cl	2	2	6	2	5										
18	Ar	2	2	6	2	6										
19	K	2	2	6	2	6	1									
20	Ca	2	2	6	2	6	2									
21	Sc	2	2	6	2	6	3									
22	Ti	2	2	6	2	6	4									
23	V	2	2	6	2	6	5									
24	Cr	2	2	6	2	6	6									
25	Mn	2	2	6	2	6	7									
26	Fe	2	2	6	2	6	8									
27	Co	2	2	6	2	6	9									
28	Ni	2	2	6	2	6	10									
29	Cu	2	2	6	2	6	10	1								
30	Zn	2	2	6	2	6	10	2								
31	Ga	2	2	6	2	6	10	2	1							
32	Ge	2	2	6	2	6	10	2	2							
33	As	2	2	6	2	6	10	2	3							
34	Se	2	2	6	2	6	10	2	4							
35	Br	2	2	6	2	6	10	2	5							
36	Kr	2	2	6	2	6	10	2	6							
37	Rb	2	2	6	2	6	10	2	6	1						
38	Sr	2	2	6	2	6	10	2	6	2						
39	Y	2	2	6	2	6	10	2	6	3						
40	Zr	2	2	6	2	6	10	2	6	4						
41	Nb	2	2	6	2	6	10	2	6	5						
42	Mo	2	2	6	2	6	10	2	6	6						
43	Tc	2	2	6	2	6	10	2	6	7						
44	Ru	2	2	6	2	6	10	2	6	8						
45	Rh	2	2	6	2	6	10	2	6	9						
46	Pd	2	2	6	2	6	10	2	6	10						
47	Ag	2	2	6	2	6	10	2	6	10	1					
48	Cd	2	2	6	2	6	10	2	6	10	2					
49	In	2	2	6	2	6	10	2	6	10	3					
50	Sn	2	2	6	2	6	10	2	6	10	4					
51	Sb	2	2	6	2	6	10	2	6	10	5					
52	Te	2	2	6	2	6	10	2	6	10	6					
53	I	2	2	6	2	6	10	2	6	10	7					
54	Xe	2	2	6	2	6	10	2	6	10	8					
55	Cs	2	2	6	2	6	10	2	6	10	9					
56	Ba	2	2	6	2	6	10	2	6	10	10					
57	La	2	2	6	2	6	10	2	6	10	11					
58	Ce	2	2	6	2	6	10	2	6	10	12					
59	Pr	2	2	6	2	6	10	2	6	10	13					
60	Nd	2	2	6	2	6	10	2	6	10	14					

61	Pm	2	2	6	2	6	10	2	6	10	14	1				
62	Sm	2	2	6	2	6	10	2	6	10	14	2				
63	Eu	2	2	6	2	6	10	2	6	10	14	2	1			
64	Gd	2	2	6	2	6	10	2	6	10	14	2	2			
65	Tb	2	2	6	2	6	10	2	6	10	14	2	3			
66	Dy	2	2	6	2	6	10	2	6	10	14	2	4			
67	Ho	2	2	6	2	6	10	2	6	10	14	2	5			
68	Er	2	2	6	2	6	10	2	6	10	14	2	6			
69	Tm	2	2	6	2	6	10	2	6	10	14	2	6	1		
70	Yb	2	2	6	2	6	10	2	6	10	14	2	6	2		
71	Lu	2	2	6	2	6	10	2	6	10	14	2	6	3		
72	Hf	2	2	6	2	6	10	2	6	10	14	2	6	4		
73	Ta	2	2	6	2	6	10	2	6	10	14	2	6	5		
74	W	2	2	6	2	6	10	2	6	10	14	2	6	6		
75	Re	2	2	6	2	6	10	2	6	10	14	2	6	7		
76	Os	2	2	6	2	6	10	2	6	10	14	2	6	8		
77	Ir	2	2	6	2	6	10	2	6	10	14	2	6	9		
78	Pt	2	2	6	2	6	10	2	6	10	14	2	6	10		
79	Au	2	2	6	2	6	10	2	6	10	14	2	6	10	1	
80	Hg	2	2	6	2	6	10	2	6	10	14	2	6	10	2	
81	Tl	2	2	6	2	6	10	2	6	10	14	2	6	10	3	
82	Pb	2	2	6	2	6	10	2	6	10	14	2	6	10	4	
83	Bi	2	2	6	2	6	10	2	6	10	14	2	6	10	5	
84	Po	2	2	6	2	6	10	2	6	10	14	2	6	10	6	
85	At	2	2	6	2	6	10	2	6	10	14	2	6	10	7	
86	Rn	2	2	6	2	6	10	2	6	10	14	2	6	10	8	
87	Fr	2	2	6	2	6	10	2	6	10	14	2	6	10	9	
88	Ra	2	2	6	2	6	10	2	6	10	14	2	6	10	10	
89	Ac	2	2	6	2	6	10	2	6	10	14	2	6	10	11	
90	Th	2	2	6	2	6	10	2	6	10	14	2	6	10	12	
91	Pa	2	2	6	2	6	10	2	6	10	14	2	6	10	13	
92	U	2	2	6	2	6	10	2	6	10	14	2	6	10	14	
93	Np	2	2	6	2	6	10	2	6	10	14	2	6	10	14	1
94	Pu	2	2	6	2	6	10	2	6	10	14	2	6	10	14	2
95	Am	2	2	6	2	6	10	2	6	10	14	2	6	10	14	3
96	Cm	2	2	6	2	6	10	2	6	10	14	2	6	10	14	4
97	Bk	2	2	6	2	6	10	2	6	10	14	2	6	10	14	5
98	Cf	2	2	6	2	6	10	2	6	10	14	2	6	10	14	6
99	Es	2	2	6	2	6	10	2	6	10	14	2	6	10	14	7
100	Fm	2	2	6	2	6	10	2	6	10	14	2	6	10	14	8
101	Md	2	2	6	2	6	10	2	6	10	14	2	6	10	14	9
102	No	2	2	6	2	6	10	2	6	10	14	2	6	10	14	10
103	Lr	2	2	6	2	6	10	2	6	10	14	2	6	10	14	11
104	Rf	2	2	6	2	6	10	2	6	10	14	2	6	10	14	12
105	Db	2	2	6	2	6	10	2	6	10	14	2	6	10	14	13
106	Sg	2	2	6	2	6	10	2	6	10	14	2	6	10	14	14
107	Bh	2	2	6	2	6	10	2	6	10	14	2	6	10	14	15
108	Hs	2	2	6	2	6	10	2	6	10	14	2	6	10	14	16
109	Mt	2	2	6	2	6	10	2	6	10	14	2	6	10	14	17
110	Ds	2	2	6	2	6	10	2	6	10	14	2	6	10	14	18

Table 2: The Best Periodic Table of Elements

Atomic Orbitals	Outermost Subshell electrons	1. Period	2. Period	3. Period	4. Period	5. Period
s	1 2	1 H 2 He	1 H 2 He	1 H 2 He	29 Cu 30 Zn	61 Pm 62 Sm
p	1 2 3 4 5 6	Stable elements	5 B 6 C 7 N 8 O 9 F 10 Ne	13 Al 14 Si 15 P 16 S 17 Cl 18 Ar	31 Ga 32 Ge 33 As 34 Se 35 Br 36 Kr	63 Eu 64 Gd 65 Tb 66 Dy 67 Ho 68 Er
d	1 2 3 4 5 6 7 8 9 10	Stable elements		19 K 20 Ca 21 Sc 22 Ti 23 V 24 Cr 25 Mn 26 Fe 27 Co 28 Ni	37 Rb 38 Sr 39 Y 40 Zr 41 Nb 42 Mo 43 Tc 44 Ru 45 Rh 46 Pd	69 Tm 70 Yb 71 Lu 72 Hf 73 Ta 74 W 75 Re 76 Os 77 Ir 78 Pt
f	1 2 3 4 5 6 7 8 9 10 11 12 13 14	Stable elements			47 Ag 48 Cd 49 In 50 Sn 51 Sb 52 Te 53 I 54 Xe 55 Cs 56 Ba 57 La 58 Ce 59 Pr 60 Nd	79 Au 80 Hg 81 Tl 82 Pb 83 Bi 84 Po 85 At 86 Rn 87 Fr 88 Ra 89 A 90 Th 91 Pa 92 U
g	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Unstable elements				93 Np 94 Pu 95 Am 96 Cm 97 Bk 98 Cf 99 Es 100 Fm 101 Md 102 No 103 Lr 104 Rf 105 Db 106 Sg 107 Bh 108 Hs 109 Mt 110 Ds

Many of the chemical and physical properties of the elements are related to the number of electrons in the outermost shell, the electrons that are valence electrons in these atoms. In table 1 there are correct valence electron configurations of the elements. In Mendeleev periodic table the elements (1-18, 29-36 and 46) have correct valence electron configurations and the elements (19-28, 37-45 and 47-92) have wrong valence electron configurations. From table 1 we make new periodic table of the elements.

Conclusion

In table 1 s p d, and f are stable subshells. Therefore, the elements 1 to 92 are stable. In table 1 5g is the unstable subshell. Therefore, the elements 93 to 110 are unstable. Using the table 1 and 2 chemists study the chemical properties of the elements 1 to 92 and discover many of the new chemical compounds. Pythagoras believes that all things are numbers.

But Jiang believes that all things are stable numbers [1-9].

This is the first time that humans have used number theory to prove and give the electronic structure and correct valence electron structure of new elements, which is the basis of chemistry. Chemists will discover many new compounds by studying the electronic structure of new elements. Mendeleev's periodic table is wrong. The valence electrons of elements 1-18 are correct, and the estimated valence electrons of elements 29-36 and 46 are correct, but the valence electrons of other elements are incorrect. Elements have no periodicity. At present, chemical research is a conjecture without theoretical guidance. This article is an application of the two principles of "prime number principle and symmetry principle" proposed by Jiang Chunxuan in 1981. Chemistry is a calculation problem. New compounds can only be found with correct valence electrons. This article provides a theoretical basis for chemistry and biochemistry. First, theoretical calculations are done and then this compound and biological structure can be found in the laboratory. The results of human research show that there are only 92 elements in nature. All scientists are at a loss for this problem. This article uses a very simple method to prove that there are only 92 elements in nature, and the other elements are artificial. So, this proof is correct. Chemical theory needs to be rewritten. This article has been posted online abroad. This should be the greatest achievement of the "18th National Congress of the Communist Party of China". I recently learned the importance of valence electrons, so I rewrote this article. The arrangement of element electrons should be continuous. The arrangement of electrons in Mendeleev's periodic table is not continuous. For elements > 18, the arrangement of extranuclear electrons is a jump arrangement according to the periodic arrangement, leaving a gap in the middle. They also know that 5g and 6g are unstable. They do not use 5g and 6g to arrange element electrons, but they use unstable 6s, 6p, 6d, 7s, to arrange element electrons. This is wrong. This problem continues to this day. Houses can only be built layer by layer to ensure that each layer is stable. If the fifth layer is unstable, then the sixth layer is also unstable. This is a principle that everyone understands. We have proved that 5g is unstable, so elements 93-110 are unstable, so 6s, 6p, 6d, 6f, 6g, 6h are unstable, and the elements after that are even more unstable. We have proved that it is absolutely correct that there are only 92 stable elements in nature.

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