The Jiang Periodic Table Of The Elements

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Abstract

Using the stable number theory we calculate the best electron configurations of the elements and not from experimental data[6-8,10].We make the Jiang periodic table of the elements[10].

In studying the stability of the many-body problem we suggest two principles [1-10].

(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.

By using the prime number principle and the symmetric principle we calculate the best electron configurations of the elements. Total quantum number n and orbital quantum number l determine the best electron configurations of the elements

Electron shells: $\begin{matrix} n=1 & 2 & 3 & 4 & 5 & 6... \\ K & L & M & N & O & P... \end{matrix}$

Electron subshells: $\begin{matrix} 2(2l+1)=2 & 6 & 10 & 14 & 18 & 22... \\ s & p & d & f & g & h... \end{matrix}$

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 is 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[1-10]. The $s, p.d$, and f subshells are stable and the g subshell is unstable.

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, $6s, bp, 6d, 6f, 6g$ and $6h$ subshells are unstable. Therefore the elements 111-182 are unstable..

Using the 1s,2s,3s,4s,and 5s of electron configurations[6-8,10] we make the Jiang periodic table of elements with five periods.The sequence of period lengths is 2,8,18,32,50.Table 1 shows

the relationship between the outermost subshell electron configurations and the Jiang periodic table.The Jiang periodic table reflects the order in which atomic orbitals are filled. The s orbitals are filled in the two rows.The p orbitals are filled in the six rows. The d orbitals are filled in the ten rows. The f orbitals are filled in the fourteen rows. The g orbitals are filled in the eighteen rows.

Table 1. The Jiang periodic table of elements.

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

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