

Necessity of urgent revising and changing the present IUPAC notation scheme in the Periodic Table

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This result is too beautiful to be false; it is more important to have beauty in one's equations than to have them fit experiment. ⁽¹⁾ - Paul Dirac

Abstract

The current modern notation scheme for the groups in the Periodic Table as proposal was prepared and published from the IUPAC Commission on the Nomenclature of Inorganic Chemistry in 1985.

Therefore this proposal for the periodic table group's notation, after various preliminary discussions and public comments for groups designation, in 1990 was set as final document and published as recommendation in Nomenclature of Inorganic Chemistry - the IUPAC Recommendations (Red Book 1) ⁽²⁾. Also, in 2005 this proposal was verified and published in IUPAC RECOMMENDATIONS (IR-3.5 - Elements in the periodic table) ⁽³⁾.

Besides that numerous other different proposals were presented, the IUPAC Commission on the Nomenclature of Inorganic Chemistry preferred their original proposal - the long form of the periodic table with seven Periods as base for the new group's notation. So their proposal for designation of the groups as recommendation for further use was accepted.

For the reason that the IUPAC Commission encourages further discussions, improvements and proposals on this subject, which is necessarily of concern to all members of the chemical and scientific community, here presented article is attempt to find solution which will better represent reality. This paper investigate the possibilities for the new notation scheme in the Periodic Table which proposal is based on several axiomatic facts: mathematic group expression, symmetry and duality, atomic radius trends, first ionization energies trends, the filling orbital's order, electron configuration of the Elements, the new modified quantum number's set and so on. Since there are so many axiomatic facts, there is no doubt that now is the right time for revising and changing the present, more than hundred year old Periodic Table's concept, together with the current notation scheme in the Periodic Table.

Note: For the reason of apparent and clear description, many tables and other graphic charts in this article are included and presented.

Keywords: periodic system, periodic table, law, elements, notation scheme, IUPAC, Janet, Madelung rule, aufbau rule, quantum mechanics, electron configuration, numbers, orbital.

Introduction

When something is not correct from the beginning or it was based on wrong hypothesis or postulates, then many unusual or strange things had to be done to justify such condition.

Such case was, or is, with the most powerful tool for education and research work, the Periodic System of the Elements, along with its tabular presentation - the Periodic Table.

So what is not correct from the beginning?

The electrons around atom's nucleus are arranged in periods, shells and orbitals in distinct energy levels. The relative position of the elements and the periodicity of their main chemical and physical properties are determined by the periodicity in the electronic structure, or electron configuration of the Elements (atoms). Elements in present Periodic Table are listed in order of increasing atomic number, or the number of the protons in atomic nucleus.

As the electron has the main role in the Quantum Mechanics, with his quantized electron's energy levels, the shape of the present Periodic Tables with these energy levels is also fully associated or connected.

There are hundreds versions of the Periodic Tables of the Elements with different form and shape. Most of them are based on Mendeleev's idea that the periodicity in the properties of the elements are in the periodic dependence on their atomic weight. In some way, all of them are different view on same object. Besides well known fact that order and electronic structure of the elements in which energy levels of atoms is filled defines the structure of the Periodic Table, and that the periodicity of the Element's properties presented through "spdf" spectroscopic energy levels always repeat after double equal rows (for all known elements), still, the current modern Periodic Table's shape is mix of single and double row element's position (notation), without real mathematical expression, with no symmetry and required total natural duality.

groups

1 2		3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18																19 20	
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**The present long form Periodic Table with
Period's and Group's notation**

1	2																	2	1	K															
H	He																	B	C	N	O	F	Ne	2	L										
2	4																	5	6	7	8	9	10	3	M										
Li	Be																	Al	Si	P	S	Cl	Ar	4	N										
11	12																	13	14	15	16	17	18	5	O										
Na	Mg																	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	6	P
19	20																	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	7	Q
37	38																	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	8	
Rb	Sr																	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	9	
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	10			
Ca	Ba	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	11			
87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	12			
Fr	Ra	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg											

periods

By ignoring this well known fact, there were made many unusual strange rules and theories to justify such condition for the current periodic table shape, which is with seven Periods and 18 Group's notation. Some of them are: the wrong number of the Periods, connection of the electron configuration with seven periods, aufbau diagonal filling order rule, Madelung rule, and periodic table's notation and so on.

Extra in particular; the current Periodic Table's format is far from real "periodic".

Only as example, below is presented the case how the well-known Madelung rule really works. This rule corrects the filling order or electron configuration of the Elements (atoms) which order is based on today current Periodic Table's shape and notation.

The Madelung's (n+l) rule in action - how it really works

period	principal quantum number	orbital quantum number	current orbital order	real orbital order	Madelung rules	n + l rule	
	n	l=0,...n-1	spectr.	n+l rule result			
K	1	0 s	1s	1s	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">first smaller n</div> <div style="margin-bottom: 10px;">1. first smaller n</div> <div style="margin-bottom: 10px;">2. first smaller l for same n+l</div> <div style="margin-bottom: 10px;">?</div> </div>	1+0=1	1s
	L	2	0 s	2s		2s	2+0=2
M	2	1 p	2p	2p		2+1=3	2p
	3	0 s	3s	3s		3+0=3	3s
N	3	1 p	3p	3p		3+1=4	3p
	3	2 d	3d	4s		3+2=5	3d
O	4	0 s	4s	3d		4+0=4	4s
	4	1 p	4p	4p		4+1=5	4p
P	4	2 d	4d	5s		4+2=6	4d
	4	3 f	4f	4d		4+3=7	4f
Q	5	0 s	5s	5p		5+0=5	5s
	5	1 p	5p	6s		5+1=6	5p
O	5	2 d	5d	4f		5+2=7	5d
	5	3 f	5f	5d	5+3=8	5f	
P	5	4 g	5g	6p	5+4=9	5g	
	6	0 s	6s	7s	6+0=6	6s	
Q	6	1 p	6p	5f	6+1=7	6p	
	6	2 d	6d	6d	6+2=8	6d	
P	6	3 f	6f	7p	6+3=9	6f	
	6	4 g	6g	8s	6+4=10	6g	
Q	6	5 h	6h	5g	6+5=11	6h	
	7	0 s	7s	6f	7+0=7	7s	
Q	7	1 p	7p	7d	7+1=8	7p	
	7	2 d	7d	8p	7+2=9	7d	
Q	7	3 f	7f	9s	7+3=10	7f	
	7	4 g	7g	6g	7+4=11	7g	
Q	7	5 h	7h	7f	7+5=12	7h	
	7	6 i	7i	8d	7+6=13	7i	

note: green fields are only prediction

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After careful examination of all mutual relations, which are result of this Madelung rule (no matter how good this rule is), the conclusion is that there are so many wrong electron's orbital position to be rearranged. Now the big question is on the table: How something is correct (current Periodic Table shape) if so many correction must be done for the real electron configuration order to be obtained as result.

Basis for the new proposed notation scheme

Almost all today's conventional, with standard form, Periodic Table's notation are based on right step *energetic* shell concept 2, 8, 18, 32, ... The relative position of the elements in the periodic table and the periodicity of their main chemical and physical properties are determined by the periodicity in the electronic structure or electron configuration of the atoms. The electrons around atom's nucleus are arranged in shells and orbital, in distinct energy levels. The electron configuration of atoms in present conventional Periodic Tables might be illustrated by the number of electrons in each sub shell, by the order of filling. The electron occupancy of the sub shells or atomic orbital of all atoms, is as follows: 1s, 2s, 2p, 3s, 3p, 3d, 4s, 4p, 4d, 4f, 5s, 5p, 5d, 5f, 5g, ... etc. The scheme that presents this filing order and also the associated spectroscopic notation scheme are presented below.

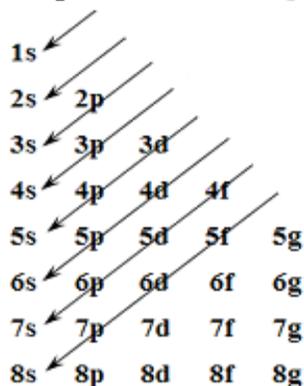
Period	Disposition of the electrons in periods							Number of the electrons in a period
n	symbol	s	p	d	f	g	h	$Z_{\max} = 2n^2$
1	K	1s						2
2	L	2s	2p					8
3	M	3s	3p	3d				18
4	N	4s	4p	4d	4f			32
5	O	5s	5p	5d	5f	g5		50
6	P	6s	6p	6d	6f	g6	h6	72

But according experimental spectral data, in ground state, above electron filling order is wrong because the electron's energy levels have the following real orbital filling order:

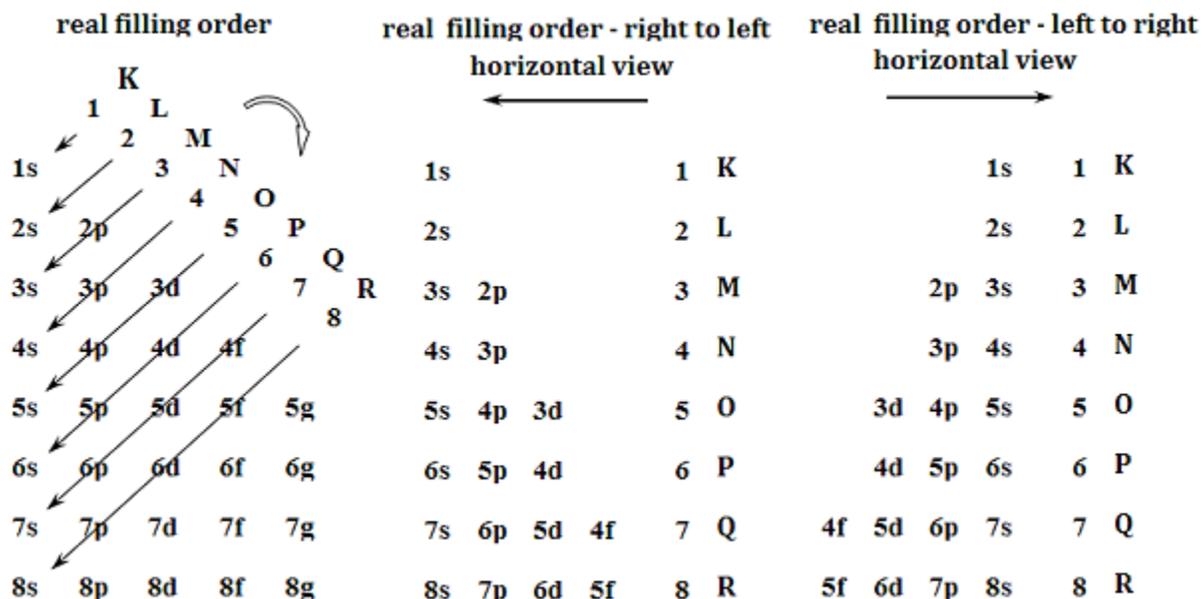
1s, 2s, 2p, 3s, 3p, 4s, 3d, 4p, 5s, 4d, 5p, 6s, 4f, 5d, 6p, 7s, 5f, 6d, 7p, 8s, ... respectively.

This filling orbital order, which is related on energy, can be derived from the well known aufbau diagonal rule, nevertheless unnecessary rule, because this is just evidence that again something else must be done, the real filling order to be enabled. (The scheme below)

aufbau diagonal rule – real filling order



If the filling orders connection lines, in the previous scheme, go in horizontal position with rotation, then the next scheme will be created:

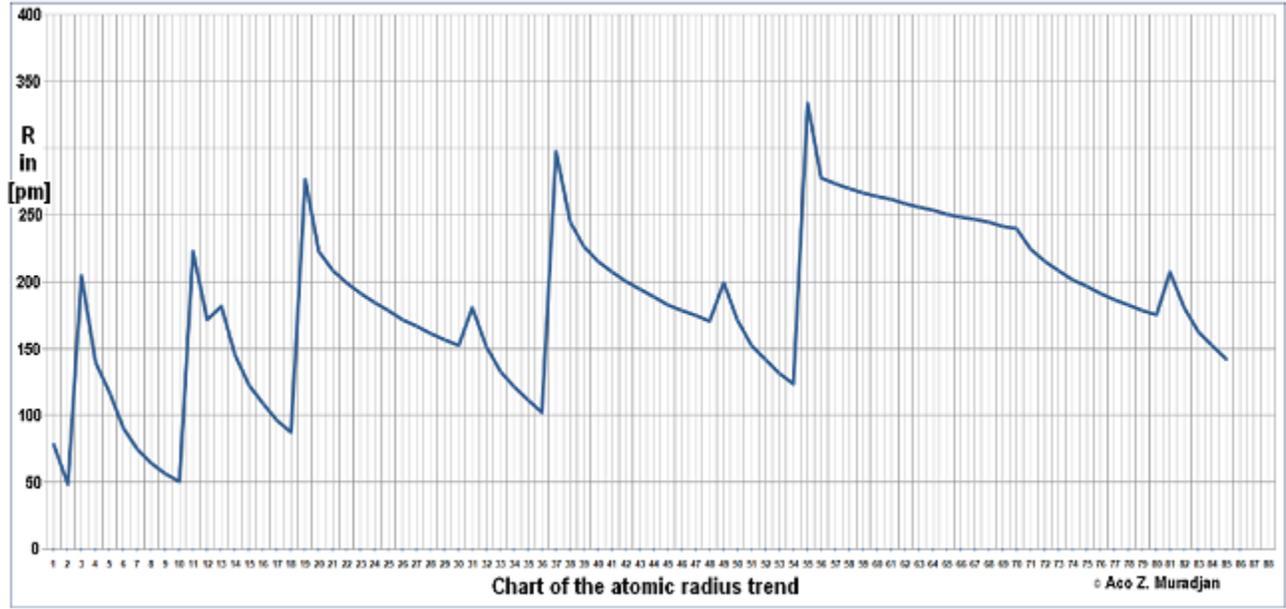


This real filling order scheme, with left to right horizontal view and mathematic group expression is just confirmation that the periodic law with mathematical structure can be presented and that for the length of periods mathematical explanations exist (table below).

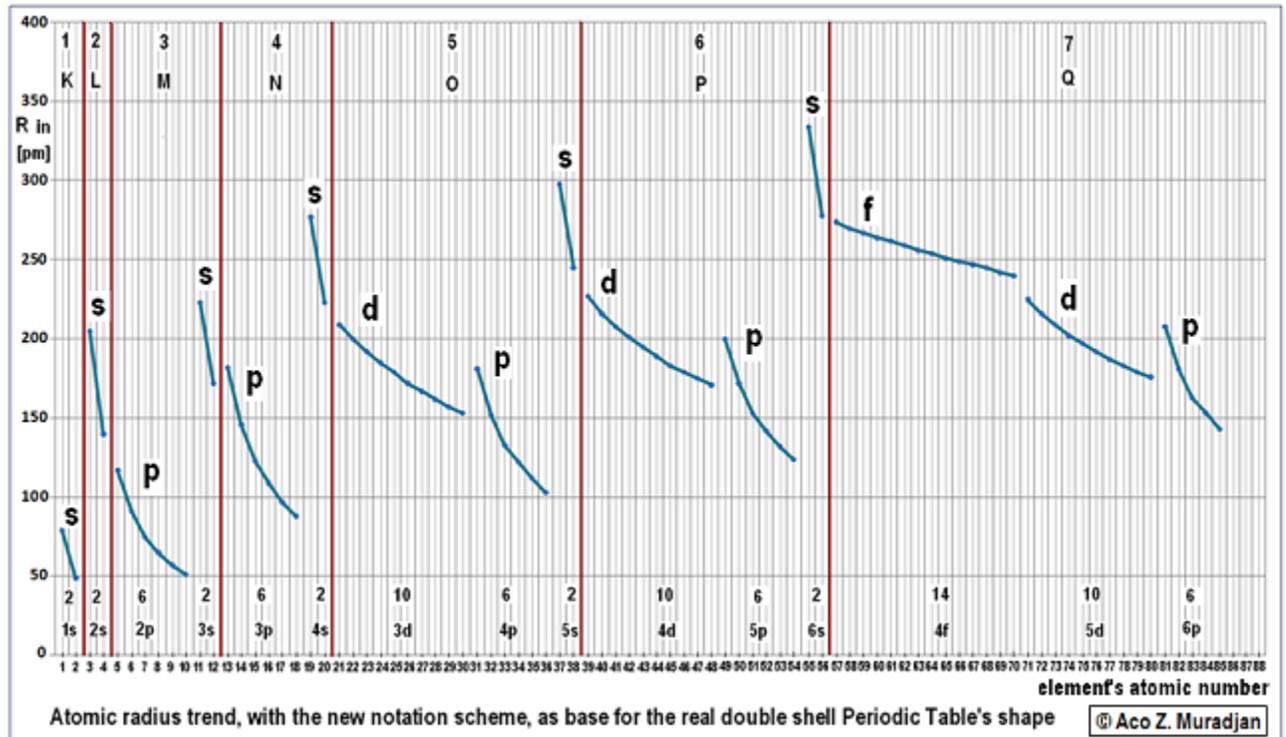
Maximum number of the electrons in a period	Maximum number of the electrons in a shell	Disposition of the electrons in periods and shells				Shell		Period
		f	d	p	s	sign	number	
$Z_{\max} = 4n^2$	$Z_{\max} = 2n^2$				1s	K	1	1
					2s	L	2	
16	8			2p	3s	M	3	2
				3p	4s	N	4	
36	18		3d	4p	5s	O	5	3
			4d	5p	6s	P	6	
64	32	4f	5d	6p	7s	Q	7	4
		5f	6d	7p	8s	R	8	

This table presents left step electron orbital's order and it is fully associated with the real Element's order in Periodic Table. As confirmation for this left step double shell Periodic Table arrangement of the chemical elements, next diagrams or graphic charts for the "Atomic radius trend" and "first Ionization potential trend", which are related with elements atomic number, below are presented.

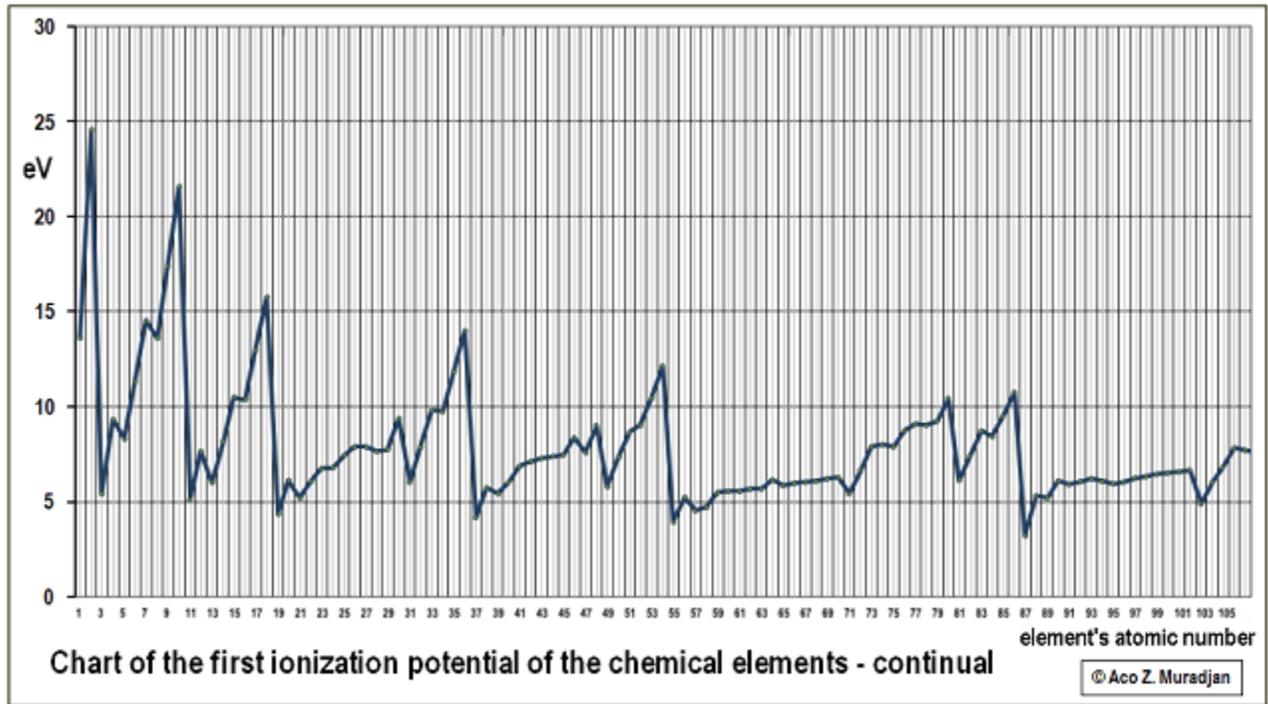
Charts of the atomic radius trend of the Elements – Continual



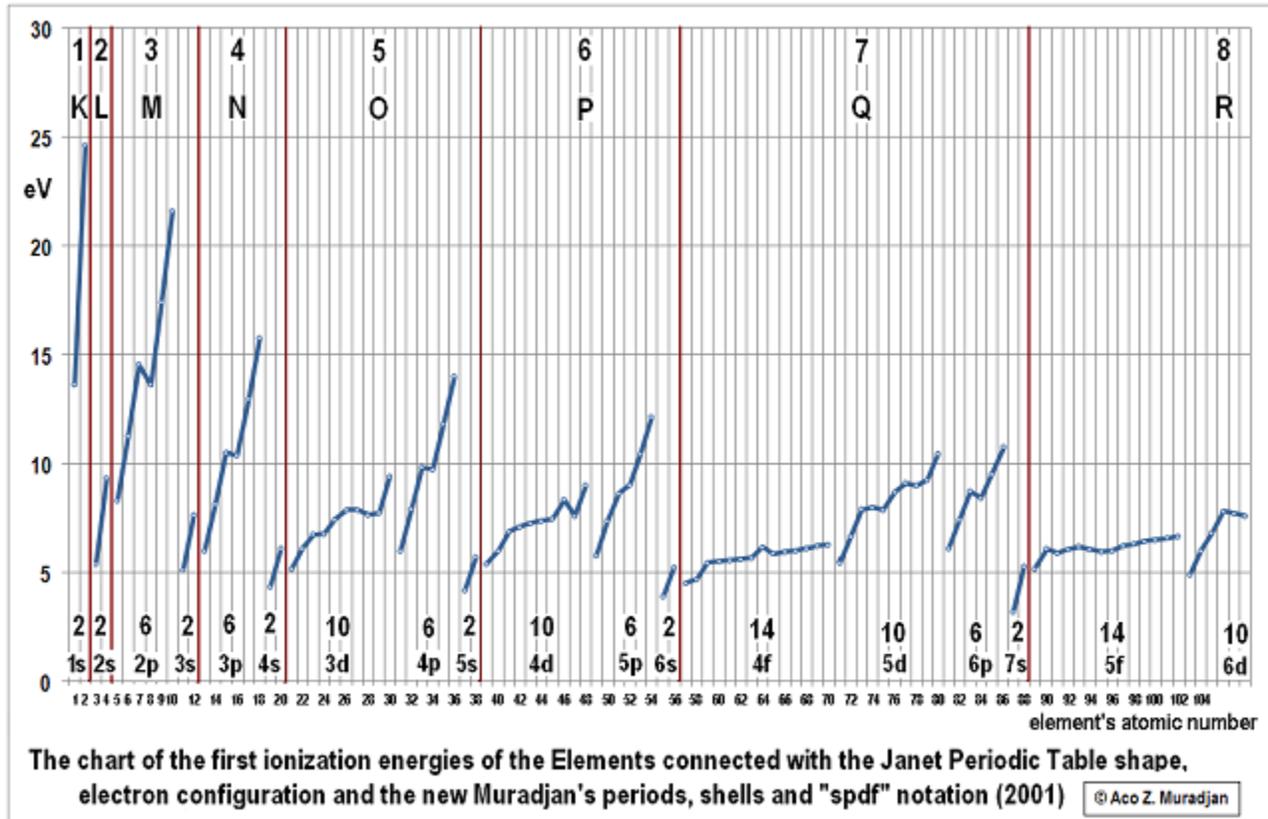
Same, but with the new notation scheme



Charts of the first Ionization potential trend of the Elements – Continual



Same, but with the new notation scheme



The source for the atomic radius and the Ionization potential values are as follows:

- The Table of Periodic Properties of the Elements; Sargent-Welch, 1980, Ohio and
- Kramida, A., Ralchenko, Yu., Reader, J., and NIST ASD Team (2013). *NIST Atomic Spectra Database* (ver.5.1).[Online]. Available: <http://physics.nist.gov/asd> [2014, September 10]. National Institute of Standards and Technology, Gaithersburg, MD.

From the pattern, from which these charts emerged, is so evident that the periodicity of the properties of the elements is doubled and that each spectroscopic sign s, p, d or f, through diagrams or charts are with same form or shape. Similar patterns among many others physical and chemical properties of the Elements can be also obtained.

The most important pattern here is fact that the number of the electrons in orbital, for each shell, goes from the highest to the smallest number, from left to right. This is the same way how electrons fulfill the orbital, starting from the nucleus. For example, the order in Q or R shell looks like this: 14, 10, 6, and 2, not 2, 14, 10 and 6.

This pattern exposes next, the most important fact: In every shell, looking from the nucleus, orbital “s” is the last orbital sign with spherical shape, and that these outer s-electrons are valence electron in all periods and shells.

Also the symmetry and duality presented through this diagrams, are among the most significant principles in the nature and is an example where the mathematical aspects are fully included.

This is not the case with the present Periodic Table’s format and notation.

So, instead current seven Periods, the Periodic System of the Elements has only four Periods with principal quantum number “n”, with double shells each, or altogether eight shells.

Periodic Table and the new notation scheme

It is well known that in 1929 the Periodic Table with such shape was proposed from French physicist, but without great attention.

Charles Janet, French engineer and physicist, between 1927 and 1929, wrote several papers about Periodic Table of the Elements. The most important is the left-step, double shell’s Periodic Table, Variant III (1929), based on the helicoidally classification of the chemical elements.⁽⁴⁾ Janet prefers this Version III because of its great regularity, which can be verified with various mathematics statements.

Génératrice de tangente 4,1																		Génératrice de tangente 3,4																		Génératrice de tangente 2,3																		Génératrice de tangente 1,2																		Génératrice de tangente 4,1																																																																											
Spires élém. 13,14,15,16 17,18,19,20																		Spires élémentaire: 7, 8, 9 Spires élémentaire: 10,11,12																		Spires élémentaire: 3, 4 Spires élémentaire: 5, 6																		Spires élémentaire: 1 Spires élémentaire: 2																		Spires élémentaire: 1 Spires élémentaire: 2																																																																											
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JANET PERIODIC TABLE
 BASED ON HELICOIDAL CLASSIFICATION OF THE ELEMENTS

In this table he introduced some new terms (numérotages) as: octade, tetrades, dyades, periodes (spires), familles and so on. Most of them didn't correspond with so told modern Periodic Table's terms and notation.

The Periodic Table with similar Janet Periodic Table shape but with the new modified modern notation scheme and with the new quantum number for eight shells was presented in 2001 as Muradjan's "Universal Periodic System"⁽⁵⁾. This table has the needed duality and is with great symmetry and is open also for inserting the new heaviest or lightest elements (if they will be discovered in the future).⁽⁶⁾

The new added quantum number for these shells is n-shell or " n_s ", which shells are marked with number - one (1) to eight (8), or with letters K to R. This new quantum " n_s " number has significance same as the principal quantum number " n ". They are both very close connected in defying the energy levels and the real electron configuration of the Elements, altogether with the current quantum numbers.

With this Janet Periodic Table's format and with the new shell quantum number " n_s " the new periodic table notation for the groups and rows was designed and proposed.

As a result, this proposal for the Periodic Table shape with the new group's notation scheme and with the new discovered, and in table added Chemical Elements, below is presented.

PERIODIC SYSTEM OF THE ELEMENTS
with the Janet table shape and with the new "n_s" quantum shell number
new "period's, shell's and group's" notation and the real "spdf" notation scheme

														(1-2) s-groups		periods and shells		the real "spdf" notation scheme																																							
														1	2	n	n _s	f	d	p	s	2n ²	4n ²																																		
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														Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	-	Fl	-	Lv	-	-	-	-												
f - block														d - block										p - block						s - bl.																											
f1 f2 f3 f4 f5 f6 f7 f8 f9 f10 f11 f12 f13 f14														d1 d2 d3 d4 d5 d6 d7 d8 d9 d10										p1 p2 p3 p4 p5 p6						s1 s2																											
f - elements without group's mark														present - 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 1 2										old - IIIA IVA VA VIA VIIA VIII IB IIB IIIB IVB VB VIB VIIB gr.0 IA IIA																																	
current IUPAC group's notation														(In present notation Helium is over Neon group)																																											

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The vertical group's notation (columns of elements with similar properties) is based on "spdf" block disposition with number of the groups same as the numbers of the elements in each block separately.

s - block – 2 groups: 1, 2

p - block – 6 groups: 3, 4, 5, 6, 7 and 8

d - block – 10 groups: 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18

f - block – 18 groups: 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36

The groups 1, 2 and 3 – 8 are designated as main group elements, same as groups 1, 2 and 13 - 18 in current Periodic Table notation.

The groups 9 – 18 are same as groups 3 – 12 or "d" elements. Here, the new group's designation has "f" elements marked as groups 19 – 32. The horizontal numbering in this table differs from current periodic table's notation scheme. So instead seven periods, there are only four periods with principal quantum number "n".

The new added quantum number for the shell is "n_s" and with this quantum number it is possible to make difference for the shells in the same period. Each of the electron shells beside the quantum number mark

“ n_s ” are marked by letters K, L, M, N, O, P, Q, and R (the same designations as the present ones of the shells plus Q and R), or the numbers 1, 2, 3, 4, 5, 6, 7, and 8.

Among other changes Hydrogen and Helium have new positions in this table. These elements are typically “s” elements and don’t belong in “p” block and are the first elements in group 1 and 2.

So for Helium position in Janet Periodic Table, Henry Bent in his book “New Ideas in Chemistry from Fresh Energy for the Periodic Law” (2006), said:

”One element finds a new home: The noblest of the noble gases is not a Noble Gas. End of story”

Or paraphrase Paul Dirac’s quotation: Such natural beauty and symmetry cannot be false.

The new quantum number “ n_s ” and relationships with the modern quantum mechanics

From Schrödinger's equation for distributions of probabilities for electron positions and locations in atom, orbitals have different shape in three dimensions space and are associated with the particular energy states. According to present modern quantum theory, the next four quantum numbers values are needed to specify distribution of electrons of an atom in atomic orbitals (n , ℓ , m_l and m_s). With these quantum numbers, each orbital is defined unique. First three numbers came from Schrodinger’s wave equation and fourth number came from the Pauli Exclusion Principle. The exclusion principle states that, in general, no two electrons can occupy exactly the same quantum state.

- The principal quantum number n describes the size of the orbital and expresses the quantization of energy E_n .
- The orbital quantum number ℓ describes the shape of the orbital and expresses the quantized values of the total angular momentum of the electron in an atom, and has values:

$$L = \hbar \sqrt{\ell(\ell + 1)}$$

- Angular momentum of an electron is a vector quantity and describes the orientation in space of a particular orbital. Choosing only discrete directions, as, for example, the Z -axis, then the “z-“ component of angular momentum, named L_z take only certain discrete values: $L_z = m_l \hbar$, where the integer “ m_l ” is the magnetic quantum number.
- The orientation in space of a particular electron is defined with an intrinsic angular momentum, called spin. This angular momentum is determinate by vector S with z-component $S_z = m_s \hbar$, where m_s is the spin quantum number which can take only two values along the z-axis.

The quantum numbers may get the following values:

- Principal quantum number n from 1 to n
- Orbital quantum number l from 0 to $n-1$
- Magnetic quantum number m_l from $-l, \dots, 0$, to $+l$
- Spin quantum number m_s from $-1/2$ to $+1/2$

These quantum numbers were the base for developing the modern Periodic System with its graphical presentation, the Periodic Table.

But the conviction that the current modern Periodic Table shape is consistent with quantum mechanics is not real, because it's very obvious that is not possible to connect current quantum numbers with the Periodic Table shape. It is evident that the electron configuration filling order, based on this quantum number's set, does not correspond to the real filling order. The table below shows this orbital or sub shells orbital incorrect order: $1s, 2s-2p, 3s-3p-3d, 4s-4p-4d-4f, 5s-5p-5d-5f-5g, \dots$ instead the real filling order: $1s, 2s, 2p-3s, 3p-4s, 3d-4p-5s, 4d-5p-6s, 4f-5d-6p-7s, 5f-6d-7p$ and $8s$.

MODERN QUANTUM NUMBERS NOTATION

principal quantum number	period notation	orbital quantum number	orbital notation	magnetic quantum number	spin	maximal number of electrons in	
						$l = 0 \dots n-1$	symbol
1	K	0	1s	0	+, -	2	2
2	L	0	2s	0	+, -	2	8
		1	2p	-1,0,+1	+, -	6	
3	M	0	3s	0	+, -	2	18
		1	3p	-1,0,+1	+, -	6	
		2	3d	-2,-1,0,+1,+2,	+, -	10	
4	N	0	4s	0	+, -	2	32
		1	4p	-1,0,+1	+, -	6	
		2	4d	-2,-1,0,+1,+2,	+, -	10	
		3	4f	-3,-2,-1,0,+1,+2,+3	+, -	14	
5	O	0	5s	0	+, -	2	50
		1	5p	-1,0,+1	+, -	6	
		2	5d	-2,-1,0,+1,+2,	+, -	10	
		3	5f	-3,-2,-1,0,+1,+2,+3	+, -	14	
		4	5g	-4,-3,-2,-1,0,+1,+2,+3+4	+, -	18	

Solution for resolving this situation can be derived from next preposition, which preposition is based on comparison between present and the real electron configuration filling order. (The table below)

QUANTUM NUMBERS NOTATION - REAL FILLING ORDER

principal quantum number	period notation	period notat.	orbital quantum number	orbital notation	orbital notation real fill. order	magnetic quantum number real filling order	spin	maximal number of electrons in	
n	symbol	new	l	symbol	symbol	m_l	m_s	shell	period
1	K	K	0	1s	1s	0	+, -	2	2
2	L	L	0	2s	2s	0	+, -	2	8
		M	1	2p	2p	-1,0,+1	+, -	6	
3	M	M	0	3s	3s	0	+, -	2	18
			1	3p	3p	-1,0,+1	+, -	6	
		N	0 2	↑ 3d ↓	4s	0	+, -	10	
4	N	O	2 0	↑ 4s ↓	3d	-2,-1,0,+1,+2,	+, -	2	32
			1 1	4p	4p	-1,0,+1	+, -	6	
			0 2	↑ 4d ↓	5s	0	+, -	10	
		2 3	↑ 4f ↓	4d	-2,-1,0,+1,+2,	+, -	14		
5	O	P	1 0	↑ 5s ↑	5p	-1,0,+1	+, -	2	50
			0 1	↑ 5p ↑	(6s)	0	+, -	6	
		Q	3 2	↓ 5d ↓	4f	-3,-2,-1,0,+1,+2,+3	+, -	10	
			2 3	5f ↓	5d	-2,-1,0,+1,+2,	+, -	14	
			1 4	5g	(6p)	-1,0,+1	+, -	18	

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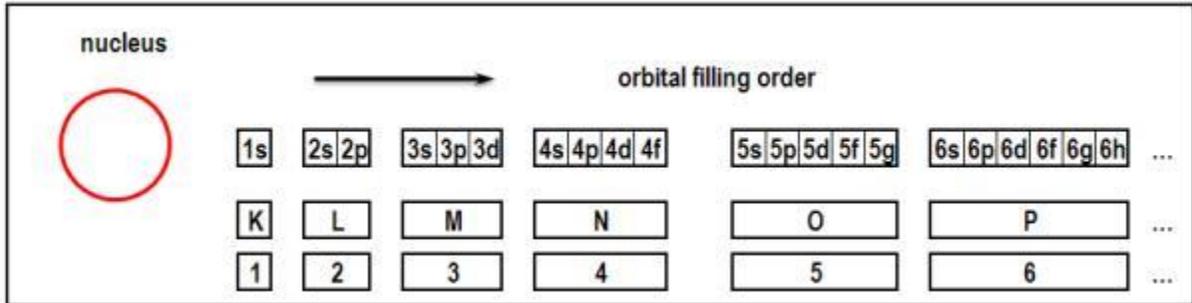
When the real filling order in above quantum number table is applied, instead current filling order, new patterns from this summary table emerge.

To get these patterns, for the real electron configuration order to be obtained, the next prepositions are proposed:

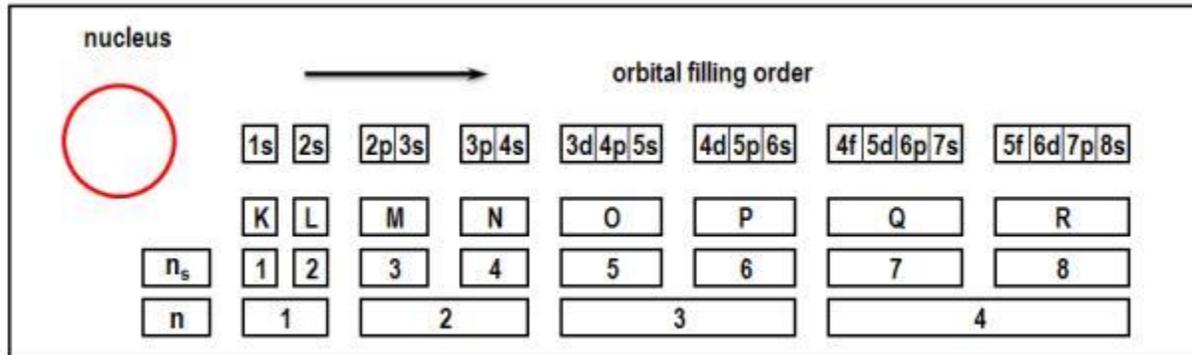
1. The Periodic System of the Elements has only four Periods with principal quantum number “n” (instead current seven Periods), with double shells each, or altogether eight shells.
2. To differentiate shells in same period, the new quantum number for the shells “n_s” must be added. The shells with number one (1) to eight (8), or with letters K to R will be marked.
3. Next, from the above table is also evident that the value for the orbital or angular quantum l is from n-1 to 0, or from period quantum number “n” minus one, to zero.
4. The last preposition is for the sub shell or orbital number. This number, instead on shell quantum number “n_s”, is equal on difference between shell quantum number “n_s” and orbital quantum number l . Such solution is compromise because this preposition is consequence of current wrong Periodic Table period’s numbering; instead four real main periods with eight shells, seven main periods in current notation scheme exist.

Differences and relationships between sub shell orbital number, orbital filling order and the current and the new notation scheme, from nucleus to atom's periphery, below are presented:

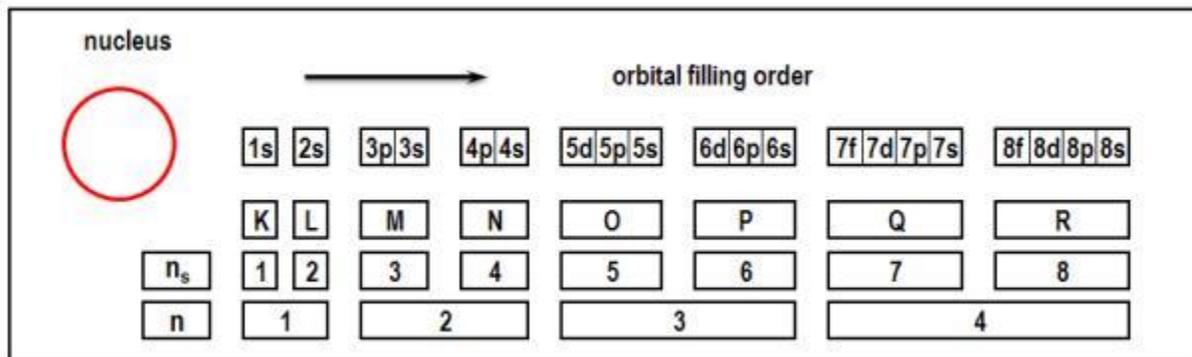
The notation scheme with current orbital filling order, periods numbering and spectroscopic symbols



New notation scheme with new orbital filling order and with new periods and shells numbering, but with current spectroscopic symbols numbering



New notation scheme with new orbital filling order, new period's and shell's numbering and with the real period and spectroscopic symbol's order, with same number " n_s " in each shell (only as option, because is hard to believe that this proposal, in such form, from scientific community will be accepted and as real solution established)



So the spectroscopic sub shell symbol for orbital and electron configuration order, instead with $[n_s, \ell]$ to be defined, now must be defined with difference between new shell quantum number, the orbital quantum number $(n_s - \ell)$ and the orbital quantum number ℓ or $[(n_s - \ell), \ell]$.

The new quantum number's set

The relationship between the Periodic Table's shape and the system of electronic configuration is so close related that they have practically same structure. The link between electron configuration, shells, sub shells and spectroscopic signs and symbols from one side, and periods and groups in Periodic Table from another side, became a base for introducing the quantum numbers and the new notation scheme.

The number of electrons in a specific period can be calculated from the "quantum numbers" associated with that period along with the "Pauli Exclusion Principle".

The periodic system with the new quantum numbers notation scheme, here proposed, consists of only four periods, each period being with a double-shell structure.

Every electron's orbital, similar as in present quantum theory, with four quantum numbers also can be defined. The next difference exists between this two quantum number's sets.

Parallel with the principal quantum number n (as period quantum number in the new proposed notation scheme), the new shell quantum number n_s also is involved.

Summary of the new quantum numbers with their values below are presented.

principal (period) quantum number	n	from	1	to	n
shell quantum number	n_s	from	$2 \times n - 1$	to	$2 \times n$
orbital quantum number	l	from	$n - 1$	to	0
magnetic quantum number	m_l	from	$-l, \dots, 0$	to	$+l$
spin quantum number	m_s	from	$-1/2$	to	$+1/2$
sub shell number	$n_s - l$	from	n	to	$2 \times n$

The new quantum number's set, or quantum state, for each particular electron's orbital energy level, with next four quantum numbers (n_s, l, m_l and m_s) is defined. This quantum number's set with the period quantum number n is strongly connected.

Maximum number of the electrons in a period	Maximum number of the electrons in a shell	Disposition of the electrons in periods and shells				Shell n_s		Period n
		f	d	p	s	letter	number	
$Z_{\max} = 4n^2$	$Z_{\max} = 2n^2$							
4	2				1s	K	1	1
	2				2s	L	2	
16	8			2p	3s	M	3	2
	8			3p	4s	N	4	
36	18		3d	4p	5s	O	5	3
	18		4d	5p	6s	P	6	
64	32	4f	5d	6p	7s	Q	7	4
	32	5f	6d	7p	8s	R	8	

1. The principal quantum number n defines the number of sub shells per shell and energy shell's degeneracy in same period. This quantum number " n ", in four quantum number scheme, is not involved directly. In every period with quantum number " n ", two shells with same length and spectroscopic sign's order are included. This means that they have same number and order of sub shells or orbitals, only size and energy of the orbitals are different. The difference between two shells in same period with quantum number " n_s " is enabled.
2. The quantum number " n_s " play same role as main or principal quantum number " n " in old and new quantum mechanics theories. Now, the quantum number " n_s " originates from the solution of the radial part of the Schrodinger equation for the hydrogen atom. The bound state energies of the electron in the Hydrogen atom are given by:

$$E_n = \frac{-me^4}{8\varepsilon_0^2 h^2} \cdot \frac{1}{n_s^2} = \frac{-13.6 \text{ eV}}{n_s^2} \quad n_s = 1, 2, 3, \dots$$

3. The orbital quantum number ℓ describes the shape of the orbital.
4. The magnetic quantum number m_ℓ , describes the orientation in space of a particular orbital.
5. The spin quantum number m_s , describe the orientation in space of a particular electron, an orbital may accommodate no more than two electrons.

The table with the new quantum number's set, based on Janet table shape and the new notation scheme with all necessary values and the real electron configuration order, below is presented.

THE NEW BASIC QUANTUM NUMBER'S SET BASED ON JANET PERIODIC TABLE SHAPE AND THE NEW PROPOSED NOTATION SCHEME											
Period quantum number	Shell quantum number	Shell symbol or mark	Orbital quantum number	Orbital shape symbol	Sub shell number	Sub shell symbol	Magnetic quantum number	Spin	Maximal number of electrons in		
									sub shell	shell	period
n	n_s	new	$l = n-1 \dots 0$	spect.	$n_s - l$	spect.	$m_l (-l \dots 0, \dots +l)$	m_s	shell	$N_s = 2 n^2$	$N = 4 n^2$
1	1	K	0	→ s	1-0 = 1	→ 1s	0	+, -	2	2	n = 1
	2	L	0	s	2-0 = 2	2s	0	+, -	2	2	4
2	3	M	1	→ p	3-1 = 2	2p	-1 0 +1	+, -	6	8	n = 2 16
			0	s	3-0 = 3	3s	0	+, -	2		
	4	N	1	p	4-1 = 3	3p	-1 0 +1	+, -	6	8	
			0	s	4-0 = 4	4s	0	+, -	2		
3	5	O	2	→ d	5-2 = 3	3d	-2 -1 0 +1 +2	+, -	10	18	n = 3 36
			1	p	5-1 = 4	4p	-1 0 +1	+, -	6		
			0	s	5-0 = 5	5s	0	+, -	2		
	6	P	2	d	6-2 = 4	4d	-2 -1 0 +1 +2	+, -	10	18	
			1	p	6-1 = 5	5p	-1 0 +1	+, -	6		
			0	s	6-0 = 6	6s	0	+, -	2		
4	7	Q	3	→ f	7-3 = 4	4f	-3 -2 -1 0 +1 +2 +3	+, -	14	32	n = 4 64
			2	d	7-2 = 5	5d	-2 -1 0 +1 +2	+, -	10		
			1	p	7-1 = 6	6p	-1 0 +1	+, -	6		
			0	s	7-0 = 7	7s	0	+, -	2		
	8	R	3	f	8-3 = 5	5f	-3 -2 -1 0 +1 +2 +3	+, -	14	32	
			2	d	8-2 = 6	6d	-2 -1 0 +1 +2	+, -	10		
			1	p	8-1 = 7	7p	-1 0 +1	+, -	6		
			0	s	8-0 = 8	8s	0	+, -	2		

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From table above it's evident that with the new here presented proposals; the real electron configuration filling order 1s,2s,2p,3s,3p,4s,3d,4p,5s,4d,5p,6s,4f,5d,6p,7s,5f,6d,7p and 8s is fully realized and related with the Periodic Table's shape.

As example, a quantum numbers set for the first twelve elements below is presented:

Element			sign	n_s	l	m_l	m_s	Period - n	Shell - n_s	
1	H	Hydrogen	1s	1	0	0	-1/2	1	1	K
2	He	Helium	1s	1	0	0	+1/2			
3	Li	Lithium	2s	2	0	0	-1/2		2	L
4	Be	Beryllium	2s	2	0	0	+1/2			
5	B	Boron	2p	3	1	-1	-1/2	2 ...	3	M
6	C	Carbon	2p	3	1	0	-1/2			
7	N	Nitrogen	2p	3	1	1	-1/2			
8	O	Oxygen	2p	3	1	-1	+1/2			
9	F	Fluorine	2p	3	1	0	+1/2			
10	Ne	Neon	2p	3	1	1	+1/2			
11	Na	Sodium	3s	3	0	0	-1/2			
12	Mg	Magnesium	3s	3	0	0	+1/2			

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Old quantum mechanics compatibility with the new proposed quantum number set and the new Periodic Table's notation scheme

Old quantum number's set

Atomic emission spectra of the Elements, defined with photons emission spectrum lines which are emitted by element's atoms or molecules, from an excited state to a lower energy state, was the first real connection or bridge between micro world's structure and macro world. As each chemical element emits a characteristic and unique wavelength's set according to its electronic structure, this wavelength set became base for developing the physics based atomic models.

Niels Bohr was the first with successful interpretation of the Hydrogen atom spectrum and the first which correlate atom's structure with the spectra of the elements. The Bohr's model and postulates expand Rutherford model and J.J. Thomson's theory, with new graphical illustration of an atom and with new concept in physics – quantum mechanics. This was the link between Physics and Chemistry. Bohr's idea that the periodicity in the properties of the elements might be explained with atomic electronic structure or electron configuration became starting point for explanation of Mendeleev's table shape and existence.

For elliptical orbitals, from Somerfield non relativistic theory, the Bohr's principal quantum number "n" is sum of radial quantum number "n_r" and azimuthal quantum number "n_φ"

$$n = n_r + n_\phi$$

$$n_\phi = k = 1, 2, 3, \dots, n$$

$$n_r = n-1, \dots, 3, 2, 1, 0$$

Ellipse big half-axis has next value $a = n^2 \times a_1$

$$a_1 = h^2 / 4\pi^2 m e^2 - \text{first orbital radius in ground state } Z=1$$

Ellipse small half-axis has next value $b = n \times n_\phi \times a_1$

Ellipse eccentricity has next value

$$e = \frac{\sqrt{a^2 - b^2}}{a}$$

This was the model for electron's motion in a plain.

For spherical electrons motion, Bohr's Sommerfeld theory introduces new magnetic quantum number n_ψ

$$n_\psi = 0 \pm 1, \pm 2, \pm 3, \dots, \pm k$$

This magnetic quantum number is also named as side quantum number with symbol m_l .

To solve Silver ion problem in magnetic field, Uhlenbeck and Goudsmith initiate the electron spin existence with magnetic quantum number $m_s = \pm 1/2$. They also introduced the new orbital or angular quantum number ℓ , which value is for one (1) lesser then old azimuthal quantum number n_ϕ or k , ($\ell = k-1$).

For that reason the value's order for azimuthal quantum number was exchanged, instead $n_\phi = k = 1 \dots n$ became $n_\phi = k = 0 \dots n-1$. The magnetic quantum number m_l now becomes proportional on new orbital quantum number ℓ .

The old quantum number's set now with next values can be presented:

principal quantum number	$n = n_r + n_\phi$	from	1	to	n
radial quantum number	n_r	from	n - 1	to	0
azimuthal quantum number	$n_\phi = k$	from	1	to	n
orbital quantum number	$\ell = k - 1$	from	0	to	n - 1
magnetic quantum number	m_l	from	-l, ... 0	to	+l
spin quantum number	m_s	from	-1/2	to	+1/2

Same as in the modern quantum theory the electron configuration order based on this old quantum number's set is also incorrect which is also evident from the table with this values presented below.

OLD QUANTUM NUMBER'S SET

principal quantum number	period notation	radial quantum number	azimuthal quantum number	orbital quantum number	orbital notation	magnetic quantum number	spin	maximal number of electrons in	
$n=n_r+n_\varphi$	symbol	$n_r=n-1,\dots,0$	$n_\varphi=k=1,\dots,n$	$l=k-1$	symbol	m_l	m_s	shell	period
1	K	0	1	0	1s	0	+, -	2	2
2	L	1	1	0	2s	0	+, -	2	8
		0	2	1	2p	-1,0,+1	+, -	6	
3	M	2	1	0	3s	0	+, -	2	18
		1	2	1	3p	-1,0,+1	+, -	6	
		0	3	2	3d	-2,-1,0,+1,+2,	+, -	10	
4	N	3	1	0	4s	0	+, -	2	32
		2	2	1	4p	-1,0,+1	+, -	6	
		1	3	2	4d	-2,-1,0,+1,+2,	+, -	10	
		0	4	3	4f	-3,-2,-1,0,+1,+2,+3	+, -	14	
5	O	4	1	0	5s	0	+, -	2	50
		3	2	1	5p	-1,0,+1	+, -	6	
		2	3	2	5d	-2,-1,0,+1,+2,	+, -	10	
		1	4	3	5f	-3,-2,-1,0,+1,+2,+3	+, -	14	
		0	5	4	5g	-4,-3,-2,-1,0,+1,+2,+3,+4	+, -	18	

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The new quantum number n_s and old quantum mechanics

For solving this incorrect order, the new quantum number's set, altogether with same preposition for the new quantum number n_s and the new notation scheme, below is presented.

principal (period) quantum number	$n=n_r+n_\varphi$	from	1	to	n
shell quantum number	n_s	from	$2*n-1$	to	$2*n$
radial quantum number	n_r	from	0	to	$n-1$
azimuthal quantum number	$n_\varphi = k$	from	n	to	1
orbital quantum number	$l = k - 1$	from	$n - 1$	to	0
magnetic quantum number	m_l	from	-l, ... 0	to	+l
spin quantum number	m_s	from	-1/2	to	+1/2
sub shell number	$n_s - l$	from	n	to	$2*n$

The value for the orbital or angular quantum number ℓ is from $n-1$ to 0, or from period quantum number minus one to zero, because azimuthal quantum number instead from 1 to n goes from n to 1.

Table with this new quantum number's set based on Janet Periodic Table's format below is presented

THE NEW BASIC QUANTUM NUMBER'S SET BASED ON JANET PERIODIC TABLE SHAPE OLD QUANTUM THEORY AND THE NEW PROPOSED NOTATION SCHEME										
Period quantum number	Shell quantum number	Shell symbol or mark	Radial quantum number	Azimuthal quantum number	Orbital quantum number	Orbital shape symbol	Sub shell number	Sub shell symbol	Magnetic quantum number	Spin
$n=n_r+n_\phi$	n_s	modif.	$n_r=0,\dots,n-1$	$n_\phi=k=n,\dots,1$	$l=k-1$	spect.	n_s-l	spect.	$m_l(-l \dots 0, \dots +l)$	m_s
1	1	K	0	1	0	→ s	1-0 = 1	→ 1s	0	+ , -
	2	L	0	1	0	s	2-0 = 2	2s	0	+ , -
2	3	M	0	2	1	→ p	3-1 = 2	2p	-1 0 +1	+ , -
			1	1	0	s	3-0 = 3	3s	0	+ , -
	4	N	0	2	1	p	4-1 = 3	3p	-1 0 +1	+ , -
			1	1	0	s	4-0 = 4	4s	0	+ , -
3	5	O	0	3	2	→ d	5-2 = 3	3d	-2 -1 0 +1 +2	+ , -
			1	2	1	p	5-1 = 4	4p	-1 0 +1	+ , -
			2	1	0	s	5-0 = 5	5s	0	+ , -
	6	P	0	3	2	d	6-2 = 4	4d	-2 -1 0 +1 +2	+ , -
			1	2	1	p	6-1 = 5	5p	-1 0 +1	+ , -
			2	1	0	s	6-0 = 6	6s	0	+ , -
4	7	Q	0	4	3	→ f	7-3 = 4	4f	-3 -2 -1 0 +1 +2 +3	+ , -
			1	3	2	d	7-2 = 5	5d	-2 -1 0 +1 +2	+ , -
			2	2	1	p	7-1 = 6	6p	-1 0 +1	+ , -
			3	1	0	s	7-0 = 7	7s	0	+ , -
	8	R	0	4	3	f	8-3 = 5	5f	-3 -2 -1 0 +1 +2 +3	+ , -
			1	3	2	d	8-2 = 6	6d	-2 -1 0 +1 +2	+ , -
			2	2	1	p	8-1 = 7	7p	-1 0 +1	+ , -
			3	1	0	s	8-0 = 8	8s	0	+ , -

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From above table is evident that with this new quantum number's set, applied in the old quantum theory, the right electron configuration order also will be easy created.

Besides that the electron configuration in above table is related perfectly with the real filling order, one item in this table is not adequate? Which one?

In the new modern quantum theory, sublevel with symbol "s" is always with spherical shape or geometry, which is enabled with the new notation preposition. But in old quantum mechanics theory (Bohr – Sommerfeld theory), when the new notation scheme was applied, one item doesn't fit in this table and has incorrect values.

This is the quantum number “ n_r ”. For all sublevels with spectroscopic symbol “s” or “ $\ell=0$ ” the radial quantum number must have zero value or $n_r = 0$, which here is not the case.

The sublevel orbital shape in old quantum theory is defined with elliptical parameters or with big and small half-axis. As example, for the incorrect “ n_r ” value, the quantum numbers set for third period in the table below is presented.

EXAMPLE FOR THE SPETROSCOPIS SYMBOL'S CONNECTION OF THE ORBITAL AND RADIAL QUANTUM NUMBERS, WITH THE NEW NOTATION PREPOSITION, WHEN IN OLD QUANTUM THEORY ARE APPLIED (ONLY FOR THE THIRD PERIOD $n = 3$)

$e = \sqrt{(a^2 - b^2)/a}$

Period quantum number	Shell quantum number	Shell symbol	Azimuthal quantum number	Orbital quantum number	Orbital shape symbol	Sub shell number	Sub shell symbol	Radial quantum number	ellipse big half-axis	ellipse small half-axis	ellipse eccentric.	orbital shape
$n = n_r + n_\phi$	n_s		$n_\phi = n \dots 1$	$l = n_\phi - 1$	spectros.	$n_s - l$	spect.	$n_r = n - n_\phi$	$a = n^2 \cdot a_x$	$b = n \cdot n_\phi \cdot a_x$	e	
3	5	O	3	2	d	3	3d	0	$9a_5$	$9a_5$	0	circle
			2	1	p	4	4p	1	$9a_5$	$6a_5$	$\sqrt{5/3}$	ellipse
			1	0	s	5	5s	2	$9a_5$	$3a_5$	$2\sqrt{2/3}$	ellipse
	6	P	3	2	d	4	4d	0	$9a_6$	$9a_6$	0	circle
			2	1	p	5	5p	1	$9a_6$	$6a_6$	$\sqrt{5/3}$	ellipse
			1	0	s	6	6s	2	$9a_6$	$3a_6$	$2\sqrt{2/3}$	ellipse

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From above table is evident that spherical shapes with $n_r = 0$ have only “d” orbital’s (3d and 4d) instead “s” orbital (5s and 6s). Why is this and how to get solution for this incorrect value for the quantum number n_r ?

To find solution for this problem, the earliest prepositions for quantum number’s values must be investigated.

The main breakthrough the old Quantum Theory developing story was in 1922 when Stern and Gerlach, with their experiment with Silver ions in magnetic field, get two instead of three beams of light lines.

Several solution were proposed for solving this problem but none was satisfactory until 1925, when Uhlenbeck and Goudsmith initiate the electron spin existence.

With their electron spin hypothesis they also introduced the new orbital or angular quantum number ℓ , which value is for one (1) lesser then old azimuthal quantum number n_ϕ or k, ($\ell = k-1$). So the magnetic quantum number “ m_l ” is not anymore proportional to the old azimuthal quantum number n_ϕ but is proportional on a new orbital or angular quantum number value ℓ . This preposition is based on simple mathematical relation. In the equitation for main quantum number, plus one and minus one are added.

$$n = n_r + n_\phi - 1 + 1$$

The new angular or orbital quantum number has the following form:

$$\ell = n_{\phi} - 1 = k - 1; n_{\phi} = k$$

The principal quantum number now has the next expression: $n = n_r + \ell + 1$

By involving of this new quantum number and also electron spin, Ulencbeck and Goldsmith solve the Silver ions problem, but open other problems. There was no more direct connection between quantum numbers and orbital shapes, similar graphic or pictorial view of the atom orbital's for same blocks symbol, and also connection with, at that time, valid spectroscopic signs or symbols. Also there was no more connection with the real electron configuration and Periodic Table shape.

The question which appears here is how this problem can be solved and connected with the new proposed quantum number set.

The problem may be solved if different value for the orbital or angular quantum number ℓ will be suggested.

The orbital quantum number ℓ is related to the principal quantum number n . For any given value of n , the value of ℓ can get any integer value from 0 up to and including the value $n - 1$.

Because the principal quantum number "n" conventionally is used for orbital labeling instead of radial quantum number " n_r ", the next preposition is suggested: The orbital quantum number ℓ instead on "n", is related on " n_r ".

Therefore, instead this orbital quantum number ℓ to be equal on azimuthal quantum number minus one or $\ell = n_{\phi} - 1 = k - 1$, this quantum number is equal on difference between main quantum number n and azimuthal quantum number n_{ϕ} , or equal on radial quantum number n_r .

$$\ell = n - n_{\phi} = n - k = n_r \dots\dots\dots (n_{\phi} = k)$$

With this preposition the orbital quantum number ℓ can obtain any integer value from $n-1$ to 0 (zero), for n_{ϕ} from 1 to n .

This preposition is suggested for the reason that with the radial quantum n_r , as difference between period quantum number n and azimuthal quantum number n_{ϕ} , the shape of the orbital is precisely defined. For $n_r = 0$ the orbital's shape is spherical.

Summary of the quantum numbers and their values on which the new preposition is based, below are presented.

principal (period) quantum number	$n = n_r + n_\phi$	from	1	to	n
shell quantum number	n_s	from	$2 \times n - 1$	to	$2 \times n$
radial quantum number	n_r	from	$n - 1$	to	0
azimuthal quantum number	$n_\phi = k$	from	1	to	n
orbital quantum number	$l = n - n_\phi$	from	$n - 1$	to	0
magnetic quantum number	m_l	from	$-l, \dots, 0$	to	$+l$
spin quantum number	m_s	from	$-1/2$	to	$+1/2$
sub shell number	$n_s - l$	from	n	to	$2 \times n$

The new quantum number's set with this new proposition has the same four quantum numbers (n_s, l, m_l and m_s), but some of them have different values.

With this new orbital quantum number's set and values, used in old quantum theory, the next table can be created and the real filling order also enabled:

THE NEW BASIC QUANTUM NUMBER'S SET BASED ON JANET PERIODIC TABLE SHAPE, OLD QUANTUM THEORY AND THE NEW PROPOSED NOTATION SCHEME														
Period quantum number	Shell quantum number	Shell symbol or mark	Radial quantum number	Azimuthal quantum number	Orbital quantum number	Orbital shape symbol	Sub shell number	Sub shell symbol	Magnetic quantum number	Spin	ellipse big half-axis	ellipse small half-axis	$e = \frac{\sqrt{a^2 - b^2}}{a}$	
$n = n_r + n_\phi$	n_s	modif.	$n_r = n - 1, \dots, 0$	$n_\phi = 1, \dots, n$	$l = n - n_\phi$	spect.	$n_s - l$	spect.	$m_l (-l \dots 0, \dots +l)$	m_s	$a = n^2 \cdot a_x$	$b = n \cdot n_\phi \cdot a_x$	e	orbital shape
1	1	K	0	1	0	S	1-0=1	1S	0	+,-	a_1	a_1	0	circle
	2	L	0	1	0	S	2-0=2	2S	0	+,-	a_2	a_2	0	circle
2	3	M	1	1	1	p	3-1=2	2p	-1 0 +1	+,-	$4a_3$	$2a_3$	$\sqrt{3}/2$	ellipse
			0	2	0	S	3-0=3	3S	0	+,-	$4a_3$	$4a_3$	0	circle
	4	N	1	1	1	p	4-1=3	3p	-1 0 +1	+,-	$4a_4$	$2a_4$	$\sqrt{3}/2$	ellipse
			0	2	0	S	4-0=4	4S	0	+,-	$4a_4$	$4a_4$	0	circle
3	5	O	2	1	2	d	5-2=3	3d	-2 -1 0 +1 +2	+,-	$9a_5$	$3a_5$	$2\sqrt{2}/3$	ellipse
			1	2	1	p	5-1=4	4p	-1 0 +1	+,-	$9a_5$	$6a_5$	$\sqrt{5}/2$	ellipse
			0	3	0	S	5-0=5	5S	0	+,-	$9a_5$	$9a_5$	0	circle
	6	P	2	1	2	d	6-2=4	4d	-2 -1 0 +1 +2	+,-	$9a_6$	$3a_6$	$2\sqrt{2}/3$	ellipse
			1	2	1	p	6-1=5	5p	-1 0 +1	+,-	$9a_6$	$6a_6$	$\sqrt{5}/2$	ellipse
			0	3	0	S	6-0=6	6S	0	+,-	$9a_6$	$9a_6$	0	circle
4	7	Q	3	1	3	f	7-3=4	4f	-3 -2 -1 0 +1 +2 +3	+,-	$16a_7$	$4a_7$	$\sqrt{15}/4$	ellipse
			2	2	2	d	7-2=5	5d	-2 -1 0 +1 +2	+,-	$16a_7$	$8a_7$	$\sqrt{3}/2$	ellipse
			1	3	1	p	7-1=6	6p	-1 0 +1	+,-	$16a_7$	$12a_7$	$\sqrt{7}/4$	ellipse
			0	4	0	S	7-0=7	7S	0	+,-	$16a_7$	$16a_7$	0	circle
	8	R	3	1	3	f	8-3=5	5f	-3 -2 -1 0 +1 +2 +3	+,-	$16a_8$	$4a_8$	$\sqrt{15}/4$	ellipse
			2	2	2	d	8-2=6	6d	-2 -1 0 +1 +2	+,-	$16a_8$	$8a_8$	$\sqrt{3}/2$	ellipse
			1	3	1	p	8-1=7	7p	-1 0 +1	+,-	$16a_8$	$12a_8$	$\sqrt{7}/4$	ellipse
			0	4	0	S	8-0=8	8S	0	+,-	$16a_8$	$16a_8$	0	circle

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So, with this new proposed quantum numbers notation scheme, the old and the new quantum mechanics requirements are satisfied entirely. This statement is correct because the four quantum number set is valid for both theories and the orbital sublevel's sign "s" always exists with spherical shape. Also, especially significant, all sublevel shells again obtain their physical reality.

Conclusion

Why urgent revising and changing the present Periodic Table's notation?

Attempt of scientists, researchers, scientific and research organizations and many, many others, to find new improved and most natural arrangement of the elements in the Periodic Table since the table was first published, is well-known. If such improvements, concepts, hypothesis or theories are based on axiomatic reality and better explain well known facts, then scientific community must pay attention on such efforts, without delaying.

Above all from the International Union of Pure and Applied Chemistry (IUPAC) - Commission for the Nomenclature of Inorganic Chemistry (CNIC) for Group Designation and also from the International Union of Pure and Applied Physics (IUPAP) such attention must be paid because the designation and Periodic Table's notation, as part of chemical nomenclature, are under their primary competition.

Note:

It's very strange that the nature around us, on most basic level, from atoms to cosmos, beside with so many different, sometime chaotic conditions exist, on such unique Janet Periodic Table's shape and elements order is correlated. We must be very content that such table shape, with such beauty, symmetry and order, even exists.

Because of that the next suggestion is proposed:

As reward for the French physicist Charles Janet, the next undiscovered chemical Element or Element with atomic number 118 or 120, if or when will be discovered, to be named as Janetium and marked with (J) as symbol.

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