

NATURAL CONSTANTS NOT BEING CONSTANT

- Almost all physical and chemical *forces* of atoms on Earth and elsewhere in the universe are variable with the different speeds of that atom or celestial body in the universe versus the center C.
- Also their associated nature constants are variable with these forces and change very slowly with these 6 - 9 different speeds of these atoms in the universe:
- Depending on the measurement accuracy, these constants are only momentarily constant over a period of decades to a few centuries:
- Only the proton/electron-charge and the size of the proton/electron-spin are independent of the speed of the atom in the universe! Under normal circumstances these are the only real constant forces the universe and during the cycle of the universe.
- This is not true during collisions of protons in particle accelerators.
- Not really being constant of constants requires great caution when interpreting especially astrophysical data obtained from space:

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*) Thanks to the comments made by Franklin Roos

**) Thanks to the figures of Adarshi Yadava

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***) INTRODUCTION:**

In this document, it appears that all the physical and chemical forces, and hence their cohesive nature constants are generated from the shell-electrons of atoms in combination with the 6 to 9 different speeds of the atom in the universe with respect to the fixed center C of the universe.

The speeds of all celestial bodies and thus of all the atoms change throughout the universe cycle very slowly over time. The physical forces and chemical forces and their physical and chemical constants of atoms therefore also change very slowly over time.

Those forces display themselves as being completely constant. However during the universe cycle these physical and chemical forces, bindings and constants are not! They are only to be regarded as more or less constant over a period of decades to centuries. At extremely high measuring accuracy which would be followed yearly changes.

In the **documents C1 and C2** www.uitewijkwinkel.eu the author deduced systematically all 17 physical forces and chemical ones present and in **document C3** atom the forces on black hole atoms in black holes are discussed. This system is overall still the same but simplified to 12 different forces.

Except for the elementary charge force and magnetic spin effect all other forces change quantitatively very slowly with the speed of the earth and all the speeds of celestial bodies. Those forces seem to be much conserved but not during the universe cycle!

Except elementary electrical and magnetic force all the other physical and chemical forces on atoms on earth change very slowly over time along with the changes of the speeds of the earth in the universe. That also applies to their respective constants of nature which only momentary have a constant value.

*** 2) THE 12 FUNDAMENTAL FORCES ON THE ELEMENTS OF THE PERIODIC SYSTEM:**

In the secondary **documents C1, C2, C3 and C4**, the author has systematically derived the fundamental forces that occur on the elements of the periodic table. In the **documents F1d and F1e**, the author has simplified the system. The formerly separate consideration about dissolving force and absorption force are now considered as sub-forms of the van der Waals/London force and its bonds and not considered as separate forces. This reduces the number of forces. See the following **tables 2-1 and 2-2**.

For the elements of the periodic system the author shall appoint now a total of 12 different fundamental forces comprising:

Table 2 – 1: The 12 fundamental physical and chemical forces:

-) 2 elementary (e) forces of the proton and the electron,
-) 1 sub-elementary force of the atom,

-) 2 mechanical forces of the atom,

-) 1 gravity force,
-) 2 physical forces of the atom,
-) 2 chemical forces of the atom,
-) 2 forces related to temperature.

Table 2-2: The 12 basic forces for normal matter or the elements of the Periodic Table:

a) The elementary forces of the proton and electron:

- 1a) the elementary charge force of the proton: $(+Lef p+1)$,
- 1b) the elementary charge force of the electron: $(+Lef e-1)$,
- 2a) the elementary magnetic spin force of the proton: $(+Mef p+1)$,
- 2b) the elementary magnetic spin force of the electron: $(+Mef e-1)$,

b) The basic forces of the atom:

- 3) the centripetal force on the shell-electron (e) in orbit around the nucleus: $(+Cpf e)$

c1) The basic (speed) forces of the nucleus:

- 4) the acceleration (A) or deceleration force of the atomic nucleus (a): $(+Af a+)/(+Af a-)$
- 5) the centripetal force of the atomic nucleus (a): $(+Cf a)$

c2) The base (speed) forces of the shell-electron (1) and on the electron pair (2):

- 6a), the gravity of the single electron (1): $(+G1f)$,
- 6b), the gravity of the electron pair (2): $(+G2f)$,

c3) The base (kinetic energy) forces of the shell-electron (1) and on the electron pair (2):

- 7) the chemically covalent radical force of the single 'shell'- electron (1): $(+R1cf)$,
- 8) the (bio)chemical covalent charge force from only the electron pair (2): $(+L2cf)$,
- 9) the van der Waals/London force; only the electron pair (2); the gas force: $(+W2f)$,
- 9a) all atoms/molecules with flexible van der Waals/London bonds / liquids: $(+W2flexb)$,
- 9b) all atoms/molecules with fixed van der Waals/London bonds / solids: $(+W2fixb)$,
- 9c) all atoms/molecules with van der Waals force but without bonds / gases: $(+W2gf)$,

Interaction between van der Waals/London forces and van der Waals/London bonds:

- 9d) dissolving atoms/molecules in a liquid: the dissolving force of the electron pair: $(+W2Db)$
- 9d) absorption atoms/molecules on solids: the absorption force of the electron pair: $(+W2Ab)$,

c4) The base (kinetic energy) force outer electron shell atom:

- 10a) the charge force of the single electron (1)/ electro pair (2): $(+L1f) / (+L2f)$,
- 10b) dissolving loaded particles/ion in water by electric load bonds: $(+L1b) / (+L2b)$,

d) The basic (temperature) forces:

- d1) 11) the light force (photons) of the single electron (1): $(+Q1f)$
- d2) 12) the infra-red force of the atomic nucleus and the proton (a): $(+Q1rf)$

Explanation table 2-1 and 2-2:

-) Elementary forces are generated on higgs level:

- 1) **Tables 2-1 and 2-2** are simplified versions of the tables in **documents C1, C2 and C3** www.uitewijkwinkel.eu .
- 2) *Essentially* the total system of these 12 physical forces and bonds including chemical ones depends only on two basic 'forces': the electric charge and magnetic spin of the

proton and electron including the sub elementary centripetal force of the shell-electron in atoms.

These elemental forces emerge already at the higgs level next to mass and anti mass; see **document F1a 2014, F1b and F1c** on www.uiterwijkwinkel.eu .

- 3) The first appearance of the centripetal force occurs in the atom that keeps the electron in its orbit around the nucleus.

-) All other forces are generated by atoms and speed/kinetic energy of atoms in the universe:

- 4) All other physical forces and chemical ones also arise only with the atom and are derivatives of these two elemental forces in combination with speed of the atom in the universe relative to its center C; see the **documents C1, C2 and C3 and E3 and E3-1** for gravity.

During the universe cycle forces come to emerge one after another. This also applies to the corresponding constants of nature.

- 5) The normal proton (= ordinary matter), and the ordinary electron (= in fact anti matter) are the only two stable basic building blocks of both ordinary matter and of black hole matter. Based on the elementary attractive charge forces of the proton and electron including their magnetic spin force, in step by step nuclear fusion all the elements of the Periodic Table are built up. This applies to normal matter as black-hole atoms/matter.
- 6) The under-c1) indicated mechanical forces are generated by change of velocity of atoms or molecules.
- 7) All the under c2), c3), and c4) physical and chemical forces are generated at the atom by the shell-electrons as a result of speed of the corresponding atom in the universe relative to the center C of the universe. This includes gravity! Gravity is not connected with mass!
- 8) Each velocity in the universe generates its own speed-associated, specific force component of all under c2), c3), and c4) mentioned forces. All these forces are built up on the earth from the same number and the same force components as the number of movements which the earth makes within the universe sphere shell relative to the origin C. This is true for all objects in the universe and the number of movements it makes with respect to the center C of the universe!

-) 6 – 9 Speeds of atoms in the universe and the speeds are not constant:

- 9) The number of different speeds of the earth in the universe is approximately 6 - 9 maybe 11 relevant speeds, each > 30 km/s. All under c2), c3), and c4) mentioned forces have 6 - 9 maybe to 11 force components due to those relevant motions.

The corresponding physical constants are also built up from 6 - 9 maybe 11 component-constants; one for each speed!

- 10) The universe has the shape of a sphere shell with center C. All galaxies have the same comparable history. As a result, these 9 to 11 speed, force components and their natural constants more or less similar in nature and structure and have the same quantitative history universe wide. Only the relative angle α between the galaxies on the universe sphere shell themselves varies.

-) Most physical and chemical constants change with their forces:

11) Those 9 to 11 velocities in the universe are not constant but all change very slowly during the universe cycle. That is why the under-c2), c3), and c4) mentioned forces and their 9 to 11 binding force and components are also not constant. These forces and their bonds also change very slowly during the unwinding of the universe cycle. These extremely slow quantitative changes also apply to the corresponding physical constants also composed of 9 to 11 sub constants!

-) Construction of physical and chemical bonds with atoms and molecules:

12) At the under c2), c3) and c4) mentioned physical forces and chemical ones only form an action-reaction pair the same kind of forces with the same velocity component. Force components of the same force with a different velocity component, however, are completely indifferent to each other. Such differing components cannot form bonds! This is expressed in the *Vector law* of Uiterwijk Winkel.

13) Only the same forces and the same velocity components of the forces mentioned under c2), c3), and c4) can form specific physical combination components and chemical ones and together therewith forms of physical bonds or chemical bonds.
When forming physical bonds and chemical ones, and each sub binding standard delivers binding heat as a sign that the amount of 'added' kinetic energy is reduced and the bond-forming pair of electrons is affected thereby in an energetically more favorable trajectory. Each sub bond contributes its own distinctive part.

14) All chemical and physical bonds under c2), c3) and c4) are made up of equal numbers of bond components as the number of movements that the earth makes in the universe. For the earth the relevant number of movements is between 6 - 9 maybe 11. Each of them is > 30 km/s.

15) So each physical and chemical bond at the earth consists of as many components different bonds as the number of movements of the earth in the universe to C. Presumably that number equals eleven. Here a direct relationship exists between astrophysics and quantum physics. On higgs level, there are just only three rotational movements, see **document F1a 2014!** The suggested 11 dimension are only on the level of atoms/molecules.

-) In the universe-sphere-shell everywhere the same system of speeds:

16) All physical bonds and chemical ones are based on the same universe wide basic structure of 9 to 11 force components and bond ones. It results in a fundamentally different view of and approach to all forms of physical bonds and chemical ones.

17) Each individual atom in the universe 'knows' in principle thanks to 9 to 11 anomalies in the orbits of its shell-electrons and thereby generated 9 to 11 force components and bond ones and the quantitative magnitude of these different force components, exactly where that particular atom is:

- a) is in the universe with respect to the center C, and
- b) with which set of 9 to 11 the atom moves with respect to the center C of the universe! That's very curious!

-) Astrophysics can solve some problems in quantum physics:

- 18) If the current numbers of speed of the earth in the universe compared to C is determined both *qualitatively and quantitatively* then all the physical forces and chemical ones and their bonds can be divided in their force components and bond ones. Then some problems in quantum physics can be solved quantitatively.
- 19) Astrophysics can solve some problems of quantum physics by deriving all current velocities of the earth in the universe and to fill in them quantitatively. The in autumn 2015/2016 to be developed mathematical model of the universe cycle will be an indispensable tool.
- 20) The movements of the earth in the universe are, in principle, to distract both qualitatively and quantitatively from:
- a) the structure of each physical and chemical bond at the earth; an extremely difficult task.
 - b) in case one so-called shell-electron of a hydrogen atom or the L-electron of a lithium one would try to bring in a perfect-spherical symmetric orbit(al) around the nucleus This is not easy! Then, the effects of the 9 to 11 movements of the earth in the universe should be fully compensated.
- 21) For now mathematical modeling of the universe cycle and especially the current part of the cycle provides the best prospects. That modeling of the universe cycle can be realized pretty fast within about one to two years.

-) Two different chemical forces:

- 22) The chemical covalent charge force (nr 8: +L2cf) and added bond covers all chemical reactions involving reactions with electron pairs. This includes virtually all biochemical reactions and within existing separate reaction steps. This is a separate chemical force/bond.
- 23) For the time being the under d) mentioned temperature forces still lacks such a component construction to speed in the universe.
- 24) In **document C2** of www.uitervijkwinkel.eu the author derived the remaining forces of the atom. For the other non-fundamental forces on the atom, see documents about forces. For the structure of bonds and repulsions, see the still to be completed **document D1**.

*** 3) DISCUSSION:**

The not being constant of most physical and chemical ‘constants’ has no direct consequences for our daily lives! It also does not play with geological / geophysical research in the world where structures found millions to billions of years old. Meanwhile those forces and bonds slowly adapted to the current situation.

However this problem does really play in astrophysics where one observes images already sent billions of years ago. They were sent during the then prevailing speeds (Doppler effect **document G9**), forces, bonds and natural constants of that far past in the universe.

Those data are billions of years later collected on Earth and interpreted against the background of the current speed of the earth in the universe and the resulting forces, bonds and natural constants that apply on earth. Anyway and any how this results in distortions of the received signal!

In astrophysics in principle it is necessary to know with what exact set speeds, forces, bonds and natural constants that radiation was emitted at that time of long ago!

Coming to earth that radiation was disturbed many times. In the context of the universe cycle all forms of electromagnetic radiation must be reformed into electrons, protons and hydrogen. In the year 2015 the author assumes that photons of infrared and light may exist as independent particles before they are reformed into electrons, protons and to hydrogen atoms only a maximum of 14 to 18 billion years.

See the **documents: F1a 2014** (Higgs particles), **F1b** (Majorana particles and photons), **F1c** (the proton and electron) and **F1d** (the elements periodic table).

***4. CONCLUSIONS:**

- 1) Only under item a) elementary physical ‘forces’ of electric charge and magnetic spin and their physical constants are quantitatively independent of the speed of the proton and the electron in the universe.
- 2) The physical constants associated with charge and magnetic spin including the velocity of light in vacuum and the period of the universe cycle are the only real constants of nature.
- 3) All other physical and chemical forces of atoms in the universe change quantitatively with the velocity of the atom in the universe. That includes all added constants of nature.
- 4) So almost all ‘constants of nature’ are variable parameters during the universe cycle!
- 5) In astrophysics observations of images, sent billions of years ago, may not be compared and interpreted with forces, bonds and natural constants, present on earth today.
- 6) These data need to be first adjusted to the speeds (Doppler effect), forces, bonds and natural constants at the time of emission relative to the current ones.
- 7) Without mathematical model of the universe cycle the pure interpretation of astrophysical data is not possible. Modeling the universe cycle is urgently needed.

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