

NINE UNIVERSE LAWS

- The conditions of the universe:

- The nine conservation laws:

- The constants of the universe:

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- *) Thanks to Franklin Roos for his comments, contributions and translation,
- ***) Thanks Adarshi Yadava for the design of the figures in **document G8**.
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* 1 INTRODUCTION:

-) **The Universe cycle:**

In document G7 www.uitewijkwinkel.eu the author describes qualitatively the energy-neutral cycle that the universe always runs, again and again. This universe cycle or Taet-cycle, consists of 29 precisely describe phases that will be settled in an unimaginable long period of about 2 to 3 x 10¹² years within a spherical space with a radius of approximately 2.5 to 3.5 x 10¹² light years around the center C of the universe.

From 2016 this universe cycle can be modeled mathematically and be filled in quantitative in detail.

-) **The paths of photons are no pure straight lines but are very slightly curved.**

The cause is the electric dipole and magnetic quadrupole construction of the photons reacting on electric and magnetic fields around the stars and galaxies. The paths of elementary particle radiations are bended as well due to their very small magnetic spin and/or their electric charge.

Except gravity all forms of radiation undergo a very slight deviation being average only about 1 degree per 10 to 40 millennia! That deflection is such that all of them continue to move within the universe-sphere-shell and cannot escape from it. Therefore, the universe-sphere shell is a 100 % closed system for mass, matter and kinetic energy.

-) **Deflection results in spiraling orbits of photons:**

This deflection and the shape of the deflection (s) have major implications for the shape and dimensions of the universe and the number of galaxies observed from Earth. Inside the gigantic universe and relatively thin universe-sphere-shell through the above forms of radiation no straight lines but flattened spiral paths with a 'circle' extent of magnitude around 60 million light years and a much smaller pitch of screw. These deflections are such that all the frankinos (neutrinos) and photons remain 100% within the universe-sphere-shell.

-) **The universe is much smaller than we think thanks to measurements with the Hubble:**

If photons move 100% purely rectilinearly than the farthest observable galaxies are approximately 14 billion light years from Earth.

In the case of an average deflection of 1 degree per 10 to 40 millennia all the photons move in spiral paths. The photons of the furthest detectable objects are also 14 billion years have been on the road, but then in the meantime within the universe-sphere-shell tens full 'convolutions' to go through a spiral. Net these photons thereby moved a distance that is approximately 10 times smaller and a 'net' distance of only about 1.4 billion light years within the universe-sphere-shell instead of the thought and observed 14 billion light years. In that case, the universe is approximately 10 times smaller than has been believed up to the present.

-) **Double counting:**

Of all distant objects in the universe the photons reach the Earth through several spiral paths. The same galaxy is then observed several times and in different places in the universe. This results in multiple duplications of those galaxies as hoaxes.

The actual number of galaxies can simply be a factor 10 to 30 times smaller than expected in 2015. The author now starts from 4 to 20 billion galaxies instead of the 150 – 200 billion observed galaxies. With multiple counts the amount of mass, matter and kinetic energy is just a factor of 10 to 20 times smaller.

With these curved paths of frankinos (neutrinos) and photons, the universe is extremely confusing. Modeling of the 29 phases of the universe cycle in **document G7** offers a way to get there. **Document G8** contains figures with explanatory notes accompanying the universe cycle.

-) The first part of the universe expansion takes place in the absence of gravity:

During the first part of the universe cycle the universe is expanding for 5 to 10 billion years on all sides uniformly from the center C in the form of spherical layers filled with single protons and single electrons, and at a rate of one third to half the speed of light. In that period the atom is missing and with the atom also lacks gravity. The origin and essence of gravity refer to the **documents E3 and E3-1** www.uitewijkwinkel.eu .

The current physics assumes that gravity is directly linked to the mass of the nucleus. In his documents the author states that gravity (like other physical and chemical forces) is generated by the 'shell'-electrons in atoms in combination with the velocity of the atom in the universe relative the center C of the universe.

If the velocity of the atom is zero relative to C then the gravity (and all other physical forces and chemical ones) of that atom is also zero. For today's physicists is that hard to believe such as a gravity-less universe immediately after the Little Bang.

That first period of expansion results in a universe having a spherical shell shape with C as the center of the universe. It expands sphere-symmetrically to a radius of 2.5 to 3.0 billion (10^9) light years. Later the radius grows to 3.0 to 3.5 billion light years. In this first atom-free period of 5 to 10 billion (10^9) years gravity lacks so the expansion is not at all slowed down!

-) Charge-free building up of gravitational energy compared to C:

In this atom-free and gravity-free period, however, no gravitational energy is directly built up. That energy relative to C is activated concretely only at the moment that the hydrogen atom comes back in the universe, simultaneously with gravity and gravitational energy compared to C. That realized gravitational energy relative to C is not immediately 'visible', but is present in the universe and is completely on the energy balance. That with the hydrogen added gravitational energy is in fact the by science sought 'dark energy'.

The next 250 ± 50 billion (10^9) years gravity brings the expansion of the universe-sphere-shell, containing 4 to 20 billion galaxies, to a full stop. In that period, all the stars used completely their hydrogen and produce fusion-energy (photons). Thereby correspondingly disappears much gravity and gravitational energy. See **Figure 6 document E3-1**.

In that period, the galaxy is fully absorbed into its central black hole and thereby disappeared. Then all the expansion kinetic energy is converted into rotational energy of the galaxies and finally in these central black holes. Then the universe starts to shrink.

The charge-free added gravitational energy to the universe is fully used at shrinking the universe again to slow the rotation of all central black holes and to reduce this rotation to zero eventually. Side effect of this is that the acceleration of the contraction-velocity of the universe-sphere-shell is continuously decelerated to a relatively constant speed of approximately 0.10 to 0.15 Mm/s.

Due to gravity, the expansion of the universe is finite. Thanks to its gravitational energy each cycle of the universe is settled in a completely energy-neutral manner. Therefore the universe cycle behaves literally as a perpetual motion! In **document G7**, the author describes how the universe phase cycle is completed by phase.

-) The universe is a completely closed system:

Deflection occurs to all types of frankinos (= neutrinos), photons and particle radiation. This keeps in motion all forms of radiation within the universe shell (except gravity). The universe-sphere-shell therefore acts as a giant balloon-like completely closed system that pulsates around the center C of the universe. That small center C has a physical size of only approximately a few centimeters.

For matter the spherical shape of the universe has a radius of at least 0.05 - 0.1 billion (10^9) km in the form of the Little Bang black hole and a maximum of approximately 2.5 to 3.5 billion light-years in the form of a universe-sphere-shell occupied by 4 to 20 billion galaxies. All electromagnetic radiation and particle radiation remain moving within that relatively thin universe-sphere-shell. Because of this deflection and spiral paths mass or matter, electromagnetic radiation, particle radiation and energy cannot escape to the universe finally.

Gravitational force-radiation and time are the only forms of 'radiation' that are without mass, matter, charge, magnetic spin and energy for 100%. That is why gravity itself moves:

a) pure linear as well as b) much faster than the speed of light.

Gravity and time travel with infinite speed throughout the universe. Gravitational radiation and time leave this universe consistently. Accumulation of gravity or time does not exist in the universe.

For all mass, matter, charge, magnetic spin and kinetic energy the universe is a completely closed system.

-) The principles of the universe cycle developed through the universe laws:

The universe and the universe cycle are based on a number of principles and conservation laws that are identified in this document as the universe laws.

-) The twelve basic parameters of the universe cycle:

Within those principles or laws all the 29 phases of the universe cycle can be described qualitatively in detail on the basis of 12 base variables or parameters of the universe being elaborated in **document G3**.

Based on these 12 parameters each of the 29 phases of the universe cycle a detailed mathematical model can be established. The author endeavors to start with the modeling from the end of 2015. Each of these 29 phases can be combined to one complete model of the universe cycle.

For each phase all 12 basic parameters will be filled quantitatively and thus the conditions of the universe as a whole cycle will be known.

Within that cycle of matter and energy all the parameters have their own minimum and maximum. The parameters are physically finite and have a cyclical nature. Time and space are no infinite quantities! See **document G2**.

The cycle of the universe will repeat itself for ever. The universe goes through its cycle over and over and almost exactly the same way. Only the number of cycles that the universe runs consecutively, is infinite! Everything else is finite.

*** 2) DOCUMENT PURPOSE:**

In this document, the author appoints the principles, the conditions and the constants of the universe.

These are reflected in the universe laws serving as preparation for the modeling of the universe cycle.

*** 3) THE NINE UNIVERSE LAWS:**

In this chapter, the conservation laws and constants of the universe are formulated.

3.1 THE FIRST UNIVERSE LAW; THE CONTINUITY EQUATION:

Law 1 a):

Each of the twelve basic parameters has the same quantitative value at the beginning and end of each universe cycle. (Continuity)

Law I b):

All ordinary matter in the universe is made up of an equal number of ordinary protons and ordinary electrons.

All black hole matter in the universe is also made up of an equal number of anti protons and anti electrons.

Law I c):

All (anti) protons, and (anti) electrons are built up from the most basic higgs, frankinos (neutrinos) and photons. In universe constructions of photons and $E = mc^2$ added kinetic rotary energy results only in ordinary protons and electrons. Anti-protons and anti-electrons rotate oppositely with equatorial speed of light.

(For the structure of higgs particles see **document F1a 2014**.)

For the structure frankinos (neutrinos) and photons see **document F1b**.

For the quarks and structure of the (anti-)proton and the (anti-)electron see **document F1c**)

Law I d):

The amounts of mass, electric charge and magnetic spin in the universe throughout the universe cycle are conserved and so they are constantly present.

Net the universe as a whole is electrically neutral.

Law I e):

All mass, matter and energy are real and present; the universe does not contain 'dark mass or matter 'and 'dark energy'. During some phases in the universe cycle a fraction of the material and thus of the mass, charge, and spin is temporarily hidden in electromagnetic radiation and in particle radiation.

Law I f):

The total amount of momentum and angular momentum remains zero.

Explanation of the Laws I a), I b), I c), Id), Ie) and If):

-) In 2015 Einstein and science do not make explicit distinction between mass and matter:

- 1) In document F1c www.uitewijkwinkel.eu the three dimensional structure of the (anti-) proton and (anti-) electron have been elaborated and displayed their physical structures in **Figures 1 to 15 of 2014 F1a, F1b and F1c.**

The (anti) proton and (anti-) electron are the only possible four basic building blocks of matter and anti-matter. These structures are based on only four most elementary higgs. All the building blocks of matter and antimatter are all made up 13.5 photons, 3 quarks and overall 81 Higgs particles.

In documents **F1a 2014** and **F1c**, the author makes a fundamental distinction between the concepts of mass and matter. The very lowest level of matter is formed by the higgs. These most elementary particles are extremely difficult to trace.

As a result of kinetic energy they rotate around their three axes and therefore deformations occur. In protest against these distortions these higgs particles generate:

- *(anti) mass and inextricably attached two elementary physical properties:*
- *positive or negative electric charge, and*
- *magnetic spin \downarrow or \uparrow .*

These smallest higgs particles do not possess the characteristic of (anti) matter! These higgs mass and equivalent higgs anti mass particles cannot annihilate!

- 2) With higgs particles frankinos (neutrinos) and photons can be build. Those particles are majorana particles. See **Figures 1-12 documents F1a 2014 F1b and F1c.** These higgs, neutrinos and photons have mass. Therefore their speed limit through the universe is the velocity of light. Photons have the following characteristics: mass, electric dipole, magnetic quadrupole, kinetic energy and a rotation clockwise or anti clockwise. Photons don't have the characteristic of matter or antimatter!

-) Matter is a derivative of mass:

- 3) According to the author is the lowest level of matter is the proton-higgs together with electron-higgs. Photons are constructions of six higgs particles. Protons and electrons are buildings of 13.5 photons, 3 quarks (and 81 higgs) rotating with equatorial speed of light around their axis and thus possess a rotational kinetic energy of $E = \frac{1}{2} mc^2$. See **F1c.** The (anti) protons and (anti) electrons have four basic characteristics: 1) mass, 2) electric charge, 3) magnetic spin, 4), an internal rotation with equatorial speed of light and rotational kinetic energy ($E = \frac{1}{2} mc^2$) clockwise or anti clockwise and thus 5) the characteristic of matter or antimatter. In addition, they possess an external linear and angular speed with associated kinetic energy.
- 4) All protons, electrons and atoms are at their lowest level built for 100% with such material containing structures of photons with equatorial speed of light rotating anticlockwise or clockwise around their axis. This results in a universe with only four basic building blocks for atoms: a) the (anti) proton-higgs and the (anti) electron-higgs, all with matter, charge and spin. They dominate the only two elementary forces of matter in the universe: electric force and magnetic force.

- 5) Because of that rotation with the speed of light c (clockwise) or (anti clockwise) matter and antimatter can annihilate and $E = 2 \times \frac{1}{2} mc^2 = mc^2$ is converted into energy and in 27 photons. During annihilation mass is not at all converted, into energy! All mass is still conserved inside these photons! See **Figure 15 document F1c**. Also each charge and spin are completely conserved.
 - 6) **Einstein's** $E = mc^2$ does not apply $m = mass$ but only *quantitatively* for $m = matter\ with\ antimatter$.
 - 7) Unfortunately, **Einstein** failed to make a clear distinction between the concepts of mass and matter. He did not recognize that matter is a derivative of mass. Anno 2015, the current science does not recognize that differences as well. A pretty disastrous mistake with far-reaching consequences for the already published scientific literature and the current theoretical research.
 - 8) The science believes the Big Bang theory based on $E = mc^2$ for $m = mass$ immediately followed by the reformation of mass energy. Then in fact the Big Bang is based on a kind of equilibrium reaction!
 - 9) In the year 2015, the science has no vision of how the stepwise transform from mass into energy occurs or vice versa. Until now nobody has been able to prove creation of mass from pure energy occurs! See as alternative **documents F1a 2014 and F1c**.
Not able to explain the stepwise transformation of 'mass' in 'energy' and vice versa is the 'Achilles heel' in the theory of relativity and in the Big Bang theory.
That is why the Big Bang theory does not explain the first 380 millennia of the universe. Then the creation of the present universe cannot be declared well!
-) Universe doesn't start with a hot Big Bang but with a super cold Little Bang:**
- 10) The Little Bang theory of the author starts from the Little Bang black hole when all the mass, matter, charge, magnetic spin and kinetic energy in the universe of the previous universe is put together in the form of black-hole atoms.
Those black-hole atoms repel each other with their negatively charged electron-shells. In all compact celestial objects such as black holes, white dwarfs and neutron stars. This puts a huge electric spring tension threaten to let fall apart the black holes, white dwarfs and neutron stars. Only gravity prevents that disintegration.
 - 11) That spring tension also applies to the Little Bang black hole where gravity holds together the black-hole atoms. In the final stage of formation of the Little Bang black hole takes the contraction-velocity of the universe further and further away until zero eventually. Gravitation is linearly related to the speed of (black hole) atoms.
With the decline contraction-velocity includes the overall contraction-gravity of the Little Bang black hole farther away until eventually zero!
At some point, the electrical repulsion between the black-hole atoms becomes stronger than gravity.
 - 12) At that point the Little Bang black hole becomes unstable and then falls apart in loose black hole atoms. See **Figure 9 of G6 and G8**. Unprotected single black-hole atoms are completely unstable and disintegrate into protons and electrons. They arrange themselves in spherical mono-layers of protons and electrons; **figures 19 - 28 of G8**.

At the Little Bang conversion of mass into energy or matter does not occur but all released protons and electrons remain completely intact.

- 13) Unlike the Big Bang, about the Little Bang the author has not the problem he should explain the formation of mass or matter from energy. The **documents F1a 2014, F1b and F1c** the author outlines an alternative process of how matter is reformed in the universe from electromagnetic radiation and from particle radiation.

-) Gravity is not directly linked to mass but only indirectly:

- 14) A similar error also applies to **Newton's** law of gravity. In his time the coupling of gravity with mass was pretty logical but fundamentally wrong. Mass does not generate intrinsically gravity! Like the other physical forces and chemical forces of the atom, gravitation is generated solely by the 'shell'-electrons of ordinary atoms, and of black-hole atoms and only in combination with movement of the atom in the universe versus the center C of the universe.

Gravity is not a constant force but a variable speed related quantity! The same applies to gravitational energy or the potential energy. See **documents E3** 'Gravity force radiation on the scale of the universe' and **document E3-1**.

- 15) However **Newton** and **Einstein** 'forgot' to add the factor $\cos \alpha$ to their formulas where α is the angle that two objects in the universe-sphere-shell make towards the center C of the universe. For two objects within the galaxy is that $\cos \alpha = 1.000$. In gravity between galaxies themselves $\cos \alpha$ is <1 .

That **Newton** and **Einstein** forgot to add this factor $\cos \alpha$ to their gravitational formulas is also logical. Their formulas without factor $\cos \alpha$ are valid only within the *Milk Way* but not beyond. There the addition of the factor $\cos \alpha$ is required!

- 16) With this factor \cos gravity in the universe decreases faster than **Newton** and **Einstein** predicted. In the universe much more gravity is present and therefore much more matter, mass (and kinetic energy) than the formulas of **Newton / Einstein** argue; **Figure 36 G8**.

-) More fundamental errors:

- 17) In the past more such basic errors crept into the foundations of the exact sciences. See **document J2**. In a **letter I3** www.uitervijkwinkel.eu to the KNAW (Royal Dutch Academy of Science) is noted a limited number of those errors.

These errors become clear when forces on the atom are derived systematically and where these forces dwell and where forces are generated in the atom. The physical forces and chemical forces of the atoms are only generated by the shell-electrons and /or electron pairs in combination with the velocity of the atom in the universe with respect to its center C. See **documents C1, C2 and C3 and F1d, F1e**. The mechanical forces arise where a change in the rate or when changing the direction of the velocity.

-) Unfortunately also serious errors in the assumptions in the theory of relativity:

- 18) When **Einstein** in the early 20th century, his theory of relativity distracted he had not yet any idea about: a) the structure of the universe, b) the structure of matter and atoms and c) how actually forces arise on matter and atoms. Especially the understanding of the origin of gravity is decisive and fundamental.

- 19) **Einstein** did not mention explicitly the principles of special and general relativity. The author conducted a detailed analysis of the principles of **Einstein** and reduced them further. Then he proved the presence of seven errors in **Einstein's** assumptions in the derivation of the special and general relativity. See **document G5**. These errors do you encounter in the systematic derivation of all forces on the atom (i.e. gravity) and in deriving of the always running universe cycle (time, space and black holes). See **document G7** for the universe cycle and **document G8** with the accompanying figures.
- 20) Those errors in these principles are fundamental and so serious in nature and scope that no longer the theory of relativity can be maintained in the foundation of science.

3.2 THE SECOND UNIVERSE LAW;

START OF THIS UNIVERSE WITH A SUPER COLD LITTLE BANG:

The 2nd Law describes the start of the universe and the conservation of mass, matter, charge, magnetic spin, momentum and angular momentum. It makes statements about the composition of matter before and after the Little Bang, during the cycle of the universe and with regard to matter of successive universes:

Law II a):

At the end of each cycle, gravity brought back together in the Little Bang black hole all matter of the universe, all electromagnetic radiation and particle radiation of the universe. The Little Bang consists entirely of black-hole atoms \geq element beryllium (Be). In the final stages it gets a radius of about 0.05 to 0.10 billion (10^9) kilometers. At the end of each cycle exactly the same Little Bang black hole sets around the exact same fixed center C of the universe.

Law II b):

The Little Bang occurs because in the final stages of formation of the Little Bang black hole all speed compared to C vanishes and thus all remaining contraction-gravity disappears passing the critical black hole gravity or *Cribhgra*. The mutual electrical repulsion or 'string-force' of the black hole atoms is then stronger than the gravity of the black hole that held it together.

This loss of gravity makes the Little Bang black hole unstable and it disintegrates into single black hole atoms.

Law II c)

During the formation of the Little Bang black hole the gravity continues to decrease to zero. The repulsion of the atoms prevents the Little Bang black hole to shrink further to a singularity.

Law II d):

At the Little Bang the black hole decays into single black hole atoms and then all of them simultaneously fall apart into an equal number of ordinary protons and ordinary electrons. During the Little Bang anti-protons and anti-electrons are not formed and therefore any annihilation does not occur.

Law II e):

During each cycle temporarily a part of the universe matter is converted into neutrinos, photons, and in particle radiation. In the universe cycle they are completely trapped in orbits around galaxies and their central black holes.

All forms of radiation (except gravitational one) may be transformed back into matter and exclusively in the form of ordinary proton, electron and hydrogen.

Notes Laws IIa), IIb), II c, II d) and II e):

- 1) In the universe cycle (**document G7** www.uiterwijkwinkel.eu) the possibility is described how all matter in the universe returns to the center C of the universe exactly the same time to form one king size Little Bang black hole with a radius of approximately 0.05 to 0.10 billion (10^9) km exactly around the center C. That Little Bang black hole is also the smallest possible volume of the universe.
- 2) In the final phase of the formation of the Little Bang black hole the speed of the black-hole atoms relative to the center C of the universe completely falls to zero and thus contraction-gravity coming from the shell-electrons of these black-hole atoms also completely disappears. For the essence of gravity; see **documents E3 and E3-1**.
- 3) The Little Bang occurs because in the final stage of the formation of the Little Bang black hole all gravity disappears completely so that it becomes less than the Critical black hole gravity or *Cribhgra*.
- 4) When the gravity drops below the critical one the omnidirectional mutual electrical repulsion (*electric spring tension*) between the electron-shells of the black-hole atoms becomes stronger than the gravity which kept these black hole atoms of the Little Bang black hole together. At that time the Little Bang black hole becomes unstable everywhere and at exactly the same moment. See **document G6**.
- 5) a) The electron-shells of black-hole atoms dwell immediately adjacent to the atomic nucleus.
b) The electron pairs disintegrated into loose electrons revolving around the nucleus at the speed of light. See **document F1e and G6**.
- 6) Because of this enormous velocity of the ‘shell’ electrons of black hole atoms they leave their nucleus directly. Therefore loose black-hole atoms are inherently unstable. These atoms can completely remain in stable inside a black hole or similar compact celestial body with a gravity stronger than the critical minimum gravity or *Cribhgra*.
- 7) When gravity drops below this *critical gravity* all black holes and the Little Bang black hole fall apart first in loose black hole atoms. Immediately thereafter all black-hole atoms fall exactly set simultaneously apart in separate unstable stationary nuclei and loose ‘shell’-electrons which have a velocity against the speed of light.
- 8) a) During the Little Bang these rapid shell-electrons help to split the atomic nuclei into separate protons and core-electrons. The rapid shell-electrons slow down while the ex ‘nucleus’ electrons and protons accelerate to a similar rate of approximately 2/3rd of the speed of light.
b) Then the protons and electrons arrange themselves into spherical mono-layers of

alternating one proton and one electron. These spherical monolayers expand by about 1/3 to 1/2 of the speed of light.

- 9) In addition in the layers with electrons all of the electrons move, even at a rate of approximately 2/3rd of the speed of light around C. See **Figures 19-27 of G8** belonging to the Little Bang (**G6**) and of the universe cycle (**G7**).
- 10) Since in the Little Bang all black-hole atoms disintegrate only continues to be an electric spring force on the inside of these mono-layers of protons and electrons.
- 11) While in the Little Bang all black-hole atoms disappear, also any gravity disappears.
- 12) During the Little Bang only ordinary protons and electrons come available. Anti-protons and anti-electrons are not formed. For the structure of normal matter and antimatter see **Figures 15 a - d of document F1c** or the same **figures 18 a - d in document G8**.
- 13) During the Little Bang itself
 - a) any form of annihilation does not happen and
 - b) matter is not converted into energy.
 - c) The Little Bang takes place near zero kelvin.
 - d) Before and after the Little Bang the same number of ordinary protons and electrons are present.
- 14) In the universe, all matter and energy is real and present. The so-called and alleged 'dark matter' and 'dark energy' can be explained. They are treated at the fourth universe law about gravity in this document.

3.3 THIRD UNIVERSE LAW; STRUCTURE OF ALL MATTER IN ACCORDANCE WITH THE PERIODIC SYSTEM:

The third law discusses the universe wide uniform structure of matter in the form of ordinary atoms in accordance with the Periodic Table of ordinary elements from hydrogen. A different building of atomic structures as well-known on earth periodic system is not possible!

Black-hole atoms are collapsed from the inside in ordinary atoms of the periodic table as a result of the formation of van der Waals bonds (or London bonds) between:

- a) the pairs of electrons inside the electron-shells of the ordinary atom and
- b) the electron pairs in the existing electron-shells themselves.

That collapse from inside ordinary atoms into black-hole atoms can only occur when atoms have at least two electron pairs. So that can only be from the element beryllium. The periodic table of black-hole elements begins for that reason first to Be. The elements H, He and Li cannot be categorized into a black hole state!

The formation of the ordinary atoms of the periodic table takes place during the hydrogen supernovas or Big Bangs that took place about 20 billion (10^9) years after the Little Bang and about 20 to 25 billion years ago.

They started from pure hydrogen plasma containing *only protons and electrons*. These explosions took place at an expansion velocity of approximately 1/3rd of the speed of light.

Because of this tremendous speed relative to the center C of the universe was a large amount of kinetic energy 'added' to both the nucleus and the electron-shells of the hydrogen atom.

During the fusion process and the construction of heavier atoms the shell-electrons of the atom always pursue to a level as low as possible 'added' kinetic energy. During thermonuclear fusion, such a structure of the electron-shells of atoms, that as much as possible of that 'added' kinetic energy is converted into heat. This is realized in the electron-shells by:

- a) combining as much as possible of single electrons to pairs ($\uparrow\downarrow$) wherein heat is released,
- b) forming 'electron'-shells with a single electron pair or tetrahedrons with four electron pairs.

During the fusion process universe wide for purely energetic reasons, the build-up of the (sub) electron-shells of all ordinary atoms happens exclusively with shells or sub shells filled with one pair of electrons, or filled with one or more than one tetrahedron(s) of 4 electron pairs or 8 electrons.

That pursue to a minimum amount of 'added' kinetic energy is reflected in the distinctive and totally logical structure of the electron-shells at all elements of the periodic table.

From hydrogen plasma the result of many fusion processes during the billions of Big Bangs universe wide mandatory in the formation of atoms. They are all arranged in accordance with the elements of the periodic system! See [Wikipedia isotopes table](#). The periodic table is true for energetic reasons so *compelling* universe wide. By extension, all the physical, chemical and mechanical forces of the atom are also universe wide uniform! See **documents F1d and C1 with C2**.

Law III A):

All ordinary matter and all black hole matter in the universe is made up of an equal number of ordinary protons and electrons. Both basic building blocks of the atom have as basic characteristics only: 1) mass / matter, 2) an electric charge, 3) a magnetic spin and 4) an amount of kinetic, electrical and magnetic translational and rotational energy.

Law III b):

The electron-shells of all ordinary elements are for energetic reasons universe wide coercive built up by electron pairs and (sub) electrons shells with 1 or 4-electron pairs in accordance with the periodic table of elements, starting from the hydrogen atom (H).

Law III c):

Black-hole atoms arise from ordinary atoms by forming of van der Waals bonds between the electron pairs inside the atom. Finally the electron-shells of the atom collapse to the same number of electron-shells that are now situated directly around the atomic nucleus by those bonds. These electron-shells are filled with the same number of electrons being single now.

Law III d):

Black-hole atoms can also be arranged into a similar periodic table of elements in a black-hole state. However, that system starts from the black hole element beryllium. The elements H, He, Li and the hydrogen molecule are the only atoms and molecule which are not to insert a black-hole state.

Law III e):

All forms of common elements and elements into a black hole exhibit a correspondingly universe wide state system of physical forces and chemical ones and a similar system in the structure of those forces.

Notes Laws III a), III b), III c), III d) and IIIe):

-) Forces on regular and black-hole matter:

- 1) The basis of the forces of the ordinary atom (from H) and the black-hole atom (first from Be) can be reduced to the elementary charge force and the elementary magnetic spin force of the proton and the electron. See **documents C1, F1a 2014, F1b and F1c and figures 1 - 15.**
- 2) The elementary forces of the proton and electron come from very lowest level of mass, charge and magnetic spin of the higgs and frankinos (neutrinos); see **document F1a, 2014.** These two elementary forces of the proton and the electron are inherent to the rotation of higgs and are quantitatively independent of the (rotational) speed of the ordinary atom or atom of the black-hole in the universe.
- 3) The other physical forces and chemical ones are related to:
 -) the atom, and
 -) the (rotation) speed of that atom in the universe.
- 4) The other physical forces of the atom and chemical ones generated by (rotational) speed of the normal atom or the black-hole one in the universe with respect to the center C and are linearly related to the size of the (rotational) speed; (applies only to gravitation) or -) quadratic ally related to the (rotational) velocity (applies to other physical or chemical forces).
The mechanical forces on the atom resulting in acceleration / deceleration, and during a change in the direction of movement of the atom. See the documents C2 / C3.
- 5) The physical forces and chemical ones of the atom, including gravity, only are generated by the shell-electrons or electron pairs in combination with velocity of the atom in the universe.
Speed / rotation speed results in:
 - a) a deviation from the ideal path of the shell-electron and
 - b) in an amount of 'added' kinetic energy of the shell electrons and pairs.
- 6) The forces on the atom arise by striving to:
 - a) as a possible ideal path (= the origin of gravity), and / or
 - b) to the lowest possible level of 'added' kinetic energy (=the origin of the other physical forces and chemical ones and their compounds).
- 7) Black-hole atoms are created due to the collapse of ordinary atoms through the formation of van der Waals/London bonds between the pairs of electrons within the electron-shells themselves, and between the electron pairs in the electron-shells. At external high pressure the electron-shells of the atom collapse to electron-shells situated directly around the nucleus. That is possible only from beryllium (Be).

- 8) With the collapse of an ordinary atom into a black hole one the velocity of the electrons increase to near the speed of light which all electron pairs disintegrate into single electrons. So the vanderwaals/London force and bond completely disappear. The collapse of the electron-shells of the atom is irreversible. During the collapse of the atom the number of the electron-shells does not change and remain filled with the same number electrons, single now.
 - 9) In the black-hole atoms the single shell-electrons move around their nucleus with about light speed.
 - 10) On the outside black hole atoms are a bit negatively charged as ordinary atoms. So they repel each other. In a black hole, however, are the black-hole atoms tightly pressed together. Because of their negatively charged exteriors show the black-hole atoms in black holes enormous mutual electrical repulsion or spring tension.
 - 11) Because of the huge electric spring tension all black holes - and other comparable compact celestial bodies such as white dwarfs and neutron stars - are unstable and threaten to fall apart spontaneously. The huge rotation-gravity prevents it.
 - 12) Black holes and other compact celestial bodies can be maintained only if such a star generates more gravity than the critical gravity that corresponds to the smallest known black hole. It has a radius of several kilometers and is linked to an equatorial rotation speed of approximately 1/3rd of the speed of light. Only as long as sufficient gravity exists the black hole remains stable.
 - 13) Because of the enormous velocity of the electrons all black-hole atoms are inherently unstable and this black hole atoms threaten fall apart explosively into individual protons and electrons. Black hole atoms can only be conserved if trapped in a black hole.
 - 14) When the amount of gravity of a black hole is smaller than the critical one then at first the black hole set in loose black hole atoms. Then the black-hole atoms fall apart explosively into separate protons and electrons.
-) All forces on matter/atoms can be derived systematically:**
- 15) Due to motion in the universe ordinary atoms generate in a total of 12 concrete differing fundamental physical, physical-chemical and chemical forces of which 8 ones are caused by velocity of the atom in the universe. See **Table 6-1 document F1d**.
 - 16) In the shells of black-hole atoms only single electrons are available. So all the forces are missing which are associated with the electron pair - including the van der Waals/London force and chemical charge force. Black hole atoms therefore generate a total of only 8 differing forces and four speed-related forces. See **Table 3-1 document F1e**. The relevant forces are only gravity, the electric charge force and magnetic spin one.
 - 17) Due to (rotational) velocities in the universe exactly the same basic system of physical forces and chemical ones occurs on the atom throughout the universe.

- 18) All the forces on ordinary matter and black-hole matter are explained and traced back to normal and the black-hole atom and (rotational) velocity of the atoms in the universe. All the forces in the universe are derivable qualitatively and quantitatively measurable quantities. (See **documents F1d and F1e**).
- 19) As a group metalloids C, N, S, O and P show the greatest diversity of speed and kinetic energy related forces. For this reason the biochemistry of living matter happens primarily with molecules built up with the elements C, H, O, N, S and P. See **document B1**.
- 20) All living matter in the universe follows exactly the same biochemical principles as known in the biochemistry of living matter on earth. See the derivation of the *Laws of biochemistry* in **documents B1 and B2, B3 and B4**.

-) Each speed in the universe generates its own force component on the physical and chemical forces; this is the Components Law of Uiterwijk Winkel:

- 21) Every movement and speed in the universe generates its own deviation away from the path of the single shell-electron or electron-pair and hence it generates its own specific force component.
- 22) Right now these force components can be described only qualitatively. They can be deduced quantitatively by modeling the universe cycle when all movements that the earth makes in the universe-sphere-shell relative to the center C are known quantitatively, and furthermore, the mutual directions of the different speeds must be determined.
- 23) In the universe the number of relevant movements of the Earth is probably from 5 - 9 velocities.
- 24) Each of these gravitational forces is proportional to the (rotation) speed in the universe. Each of the other physical forces and chemical ones are proportional to the square of each speed.
This explains why the by shell-electrons generated gravity is so much weaker in comparison to the other physical forces and chemical ones of atoms.
- 25) Only corresponding force components attract each other mutually; gravity included. The **Vector law by Uiterwijk Winkel**: only corresponding force components of the same force can make a physical bond or a chemical one. So all physical and chemical forces, and their compounds in the universe are built up of 5 - 9 separate binding components.

-) Astrophysics and quantum mechanics:

- 26) The number of speeds and the magnitude of each speed are relevant to the quantum mechanics. After all on the earth, all the physical forces and chemical ones including their bonds consist of the same number of components as the number of movements of the earth in the universe.
The magnitude of each force component and its bond depends on the speed of the celestial body and its molecules in the universe.

- 27) In favor of the quantum mechanics it is a requirement to figure out that astrophysics know:
- a) all movements of the earth in the universe,
 - b) the quantitative extent of any movement in itself and
 - c) the mutual angles between those 5 - 9 relevant movements and velocities.
- Astrophysics thus solves the current problems in quantum mechanics.
- 28) In the universe everywhere exactly the same system of physical forces and chemical ones applies. Locally, however, differences with respect to the number of movements and force components can occur due to differences in velocity and in direction, and the angles of the speeds relative to each other.
-) The atom and return of gravity:**
- 29) With the formation of the proton and the electron of the hydrogen atom and molecule in combination with the speed of them in the universe also gravity comes back in the universe as well as other physical forces and chemical ones; **Figure 34 in document G8.** With the return of universal gravity a similar slowdown in the expansion rate of the universe starts that continues to this day and which was completed only after 200 ± 50 billion (10^9) years.
- 30) That braking of the expansion rate cannot be converted into heat, but only in a different movement in planes perpendicular to the expansion velocity. This results in a rotary motion / angular speeds which are currently present at all visible galaxies.
- 31) This process of slowing down the expansion rate and converting it into angular speed of galaxies is still going on. The rotation of galaxies is visual evidence that the expansion of the universe is actually slowed down everywhere. Because of that deceleration anyway there will be an end to the expansion of the universe.
- 32) When the expansion velocity is zero and the expansion of the universe-sphere-shell has reached its maximum, in the meantime also all galaxies have been fully incorporated into their central black hole and all nuclear physical activity and stabilization also completed. All the expansion rate of the universe is then converted into rotation of the central black holes. Only rotation-gravity remains in the universe-sphere-shell.
- 33) Under the influence of rotation-gravity the universe will downsize afterwards simultaneously and all matter will be led back to C where all the black-hole matter returns at the same time.**
-) All forces are real; in the universe unexplained forces are impossible:**
- 34) In the **documents C1, C2, C3 and C4 and F1d and F1d** the author has concrete appointed all the points of action of the forces in the ordinary black hole atom and the anti-hydrogen atom and there systematically distracted all the physical and chemical forces.
- 35) In any kind of matter more points of action are not available for generating mystical or inexplicable forces. Neither such forces can exist in matter-free space.

- 36) The origin of all forces in the universe is directly linked to moving atoms. All observed forces (e.g. gravity) can be reduced to matter or atoms in the universe and to radiation emitted in the past from ordinary matter or from black-hole matter.
- 37) In the universe there is no force of which its origin is not linked to specific matter and atoms. The massless and matter less nothing in the universe cannot produce any kind of force.
- 38) In the universe-sphere-shell an extremely low concentration of hydrogen and helium is present. Only through this almost empty universe-sphere-shell electromagnetic radiation (frankinos / neutrinos) and photons can move and particle radiation is transmitted. These forms of radiation of themselves have mass, charge, magnetic spin and energy, and are guided due to an interaction with the hydrogen and helium present.

3.4 THE FOURTH UNIVERSE LAW: GRAVITY AND GRAVITY-ENERGY

All ordinary atoms and black-hole ones in the universe are made up of ordinary protons and ordinary electrons. All *individual* protons and electrons of atoms and molecules do not generate *of itself any form of gravity* despite their mass and matter, charge and magnetic spin.

Gravity is generated only by the shell-electrons of the atom and only if that ordinary atom or black-hole one moves with respect to the center C of the universe. See **document E3 and E3-1**. The phenomenon of gravitational energy is coupled at gravity.

-) Gravity:

Any form of velocity in the universe causes its own deviation in the path of the shell-electron or electron pair. To counteract the deviation these shell-electrons generate gravity for the primary goal to slow down the speed and / or the rotational speed of the atom.

So gravity is not generated by the mass of the nucleus but only by the shell-electrons of the atom only in combination with velocity of the atom in the universe compared to C!

Gravitational radiation has no mass, charge and no magnetic spin or any energy! Gravity only generates gravitational energy relative to the center C of the universe!

The author states that no direct relationship exists between the mass and gravity, only an indirect relation due to the number of shell-electrons and electron pairs of the atom in combination with the magnitude of the velocity / (rotational) speed of the atom in the universe. This principle is the heart of **document E3 and E3-1**.

-) Loose protons and electrons do not generate gravity nor any other physical force or chemical one:

If after the Little Bang loose ordinary protons and electrons would generate gravity, then the expanding universe-sphere-shell would immediately implode to a sphere consisting of mono-layers of loose protons and electrons.

Author's theory is contrary to current thinking in science because the last one holds direct relationship between mass and gravity.

In **document E3 and E3-1** the author derived the origin and the cause of the phenomenon gravity. In that document **Franklin Roos** changed fundamentally and radically **Newton's** gravitational law by new gravitational formulas in relation to author's theory. Simplification of these formulas delivers again the gravitational formula of **Newton**. There is the mandatory additional factor $\cos \alpha$ which also should be added the gravitational formula of **Einstein**.

-) Still atoms do not generate gravity or any other physical force or chemical one:

- a) Thus gravity is generated only by the shell-electrons and / or electron pairs orbiting around a nucleus, the atom moving with a certain velocity in the universe with respect to the center C of the universe.
- b) Every *still atom* relative to the center C of the universe will be remained, is not disturbed and it does not generate any gravity or any other physical force or chemical one. Only the elementary charge force and elementary magnetic spin force stay.
The same applies to the loose protons and electrons.
All these still atoms in the universe are both physically and chemically completely inert!
- c) For the time being the gravity due to the shell-electron is proportional to any velocity of a moving atom in the universe. So gravity is proportional to the square root of the kinetic energy of the atom distributed over linear movements and rotational ones.
- d) All the other physical forces and chemical ones of the atom are related to kinetic energy and so they are quadratic ally proportional to each speed of the atom in the universe!

-) Atomic nuclei are completely free of gravity:

The atomic nuclei with mass are not at all related to gravity. The mass itself of the electron is also entirely without gravity. The gravitational force is generated only by the shell-electrons of the atom in combination with velocity of the atom in the universe. (The weight of an atom is also generated solely from the shell-electrons in the atom combined with speed of that atom in the universe and gravitation)

The author's view is controversial with the one of science in 2015 because there is no direct relationship between the concepts of mass and gravity, or between the concepts of mass and weight. Through the atom there is only an indirect relationship.

-) The 4th universe law explains the relation between the mass of matter (the loose electron, loose proton and the atomic nuclei) and gravity:

Law IV a):

All not moving (relative to the center of the universe, C, ordinary matter and black-hole one in the form of atoms have mass, electric charge, and magnetic spin but without gravity and without any other velocity-related physical force and chemical one. This also applies to loose protons and electrons. (Still matter / atoms have no weight in the universe)

Law IV b):

Gravity and kinetic energy-related physical forces and chemical ones on the atom are generated only by the shell-electrons of regular atoms and black-hole ones that move in space relative to the center C of the universe.

Law IV c):

Gravity is linearly proportional to (rotational) velocity of the atom in the universe. The other physical forces and chemical ones of the atom increase or decreases quadratic ally with the linear speed or the rotational one.

Law IV d):

Gravity of an atom changes linearly proportionally with the (linear or rotational) velocity of the atom in the universe compared to the center C of the universe. The mass of the atom doesn't change with velocity! With gravity the gravitational energy of the atom is changing as well.

Law IV e):

The amount of gravity and gravity energy in the universe is proportional to

- 1) the number of shell-electrons and**
- 2) the speed of the atoms locally versus the center C of the universe.**

Law IV f):

During the universe cycle, with the formation of hydrogen at the same time free of charge, gravitational energy is added to the universe cycle: 1) with respect to C, and 2) within the universe-sphere-shell.

During the contraction of the universe that gravitational energy is fully utilized to slow down the acceleration of the contraction of the universe.

Explanation of the Laws IV a), IV b), IV c), IV d), IV e and IVf):

-) Relation between speed in the universe and forces on the atom:

- 1) The amount of generated gravity is proportional to each speed (translational or rotational) of the atom in the universe. Every form of velocity in the universe generates its own specific gravity component.
- 2) a) Only corresponding gravity components attract. The same applies to other forces. The not corresponding gravity components are totally indifferent to each other. The structure of gravity is therefore quite complex.
b) An example: if galaxy A attract galaxy B with rotation-gravity, then galaxy B attracts galaxy A with the same rotation-gravity as well, but not with expansion-gravity.
- 3) Gravity and thus the weight of an atom will linearly increase with the velocity of the atom. The mass of the atom doesn't change! Mass is conserved during any condition. Mass is a fundamental characteristic of matter equal elementary charge and magnitude of the elementary magnetic spin. These are speed independent variables.
- 4) Einstein made an annoying mistake by stating that the mass increases with speed. The *observed* increase of mass can be explained by the increase of gravity; **see documents E3, E3-1 and G5**. The mass remains the same. Only the gravity of the atom increases with the speed in the universe of that atom! The error that mass increases with speed is made very quickly!
- 5) Considering measurements the two interpretations result in the same outcome, which is why this basic flaw in the theory of relativity is neither discovered much earlier nor adapted within science.

-) **Application of correction $\cos \alpha$ in the gravitational formulas:**
- 6) In documents **E3** and **E3-1**, the author along with **Franklin Roos'** law of gravitation **Newton** radically adapted by drawing up new formulas based on:
- the number of shell-electrons in the atoms at both objects instead of mass,
 - the speed of both attracting objects and their atoms in the universe relative to the center C of the universe,
 - applying a correction factor $\cos \alpha$ wherein α is the angle which these two objects at the universe-sphere-shell have relative to the center C of the universe.
 - gravity is inverse proportional to the square of the distance of the two attracting objects.

Simplification of the formula for constant speed by **Franklin Roos** results again in **Newton's** gravity law, however with the mandatory addition of $\cos a$. See **documents E3 and E3-1**.

- 7) The simplified formula of Newton becomes:

$$F_{\text{grav}} = G \cdot m_1 \cdot m_2 \cdot \cos \alpha / d^2$$

m_1 = mass of the object in one kg,

m_2 = mass of the other object in kg,

α = the angle which is found on both objects have the universe-sphere-shell relative to each other and the center C of the universe,

d = the distance between the two objects,

G = gravitational constant $(6.6428 \pm 0.00067) \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$.

This gravitational constant G is moreover not really constant but variable with the speed of the atom in the universe and is a variable quantity of the universe clock time. G is built up of 5 - 9 velocity components; one for each of the 5 – 9 relevant velocities / speeds of the earth in the universe!

- 8) Within the scale of the universe-sphere-shell for one galaxy the angle α equals to zero. Then within one galaxy $\cos \alpha$ equals one. As the distance between two objects on the universe-sphere-shell becomes larger, the factor $\cos \alpha$ runs from 1 to 0 in the end.
- 9) Diametrically in the universe-sphere-shell – seen from earth - $\cos \alpha$ is negative even -1. Probably in practice the gravity of the matter in the other hemisphere of the universe cannot be perceived! See the corresponding **figure 36 in document G8**.

-) **With the introduction of $\cos \alpha$ in Newton's law of gravity the universal balance of mass and energy already is almost perfectly fitting:**

- 10) Thanks to the added factor \cos the formulas of Newton and Einstein in the universe appears to be much more gravity and thus much more matter and kinetic energy than it follows from the current 'bare' gravitational formulas of Newton and Einstein!
- 11) When adding $\cos \alpha$ in the gravity formula of **Newton** and adding the aforementioned gravitational energy will prove that the mass and energy balances of the universe are already getting profound all right.
- 12) In spite of the above the gravitational formulas of **Newton** and **Einstein** have been based on the wrong premise of mass instead of the number of shell-electrons combined with

speed of the atom in the universe. See **Chapter 6.3 of document E3** where **Franklin Roos** derived the new gravitational formula.

-) **Space and time:**

- 13) The universe gets shape, space and form only thanks to the presence of matter and the place of its atoms in celestial bodies relative to the center C of the universe.
- 14) 'Seen' from C the outer radius of the universe-sphere-shell is 2,5 - 3,0 billion (10^9) light years now and everything is dark for all wavelength. All photons move only within the universe-sphere-shell with the speed of light. Within the universe-sphere-shell all photons have been trapped in orbits within galaxies and around one of the central black holes of each galaxy.
There photons are reformed into protons, electrons and into hydrogen eventually.
- 15) Recalculating to the same universe clock time all observed galaxies have exactly the same expansion rate. Absolute also always all galaxies have exactly the same universe clock time compared to C. Considered from C both time and space are always exactly the same.
- 16) After the Little Bang the universe clock time and space compared to C can only be established and calculated in a model.
- 17) From the Earth we observe the same galaxies at different distances and the expansion rate increases with the distance of the galaxy to Earth. That's right because the universe earlier expanded faster than at present due to gravity. We observe an accelerated expanding universe-sphere-shell. In reality, there is a universe-sphere-shell expanding decelerated due to gravity.
- 18) In the formation of the hydrogen atom, about 5 to 10 billion (10^9) years ago, gravity came back into the universe. Then the universe swelled with one third to half the speed of light. Since the return of gravity the expansion rate of the universe slows further and this expansion comes to a complete stop after 400 ± 50 billion (10^9) years.
- 19) If the observation point is located further away from C and the object to be observed is located further away from the earth then the relativity of time and space become larger and the time measurement is less and less correct.
- 20) In scientific theories associated considerations may however be done only from the center C of the universe, and from no other orientation point in the universe. After all, only in C, time and space are absolute. In other places in the universe both are relative more and more with increasing distance to C and increases the mutual distance between the objects. See **document G2** and the corresponding **figure 29 in document G8**.
- 21) During the derivation of the theory of relativity, Einstein did not obey the previous item with the consequence that he himself introduced the time differences within the theory of relativity.

-) Gravity creates a limited universe:

- 22) Gravity is the only force of the atom which is active up to the scale of the universe. Gravity ensures that all forms of ordinary matter and black-hole matter continue to meet within a maximum limited spherical space of the universe.
- 23) Gravity limits the universe of matter into a relatively thin spherical shell space with a radius of 3.0 to 3.5 billion (10^9) light years around the center C of the universe. Electric and magnetic fields are also limited only to those relatively thin universe-sphere-shell.
- 24) Gravity is the only form of 'radiation' without mass, energy, charge and magnetic spin. Gravity is not bent and moves with infinite speed. All gravitational radiation leaves this universe final.
- 25) During the universe cycle gravity ensures that the expansion rate of all matter is reduced to zero in the end after 350 to 450 billion (10^9) years. That slow the expansion rate of the universe-sphere-shell gravitational energy is released. That energy can be converted into heat. The energy released is partly converted into gravitational energy relative to C and partly converted into rotation-energy which is visible in the rotation that occurs in all galaxies and their central black hole.
- 26) At the end of the expansion about $(0.25 \pm 0.05) \times 10^{12}$ years the universe is completely devoid of all the particles radiation and of all the electromagnetic radiation. Then remains only gravity as some form of radiation. Then start the contraction of the universe in which all central black holes back to C and arrive there simultaneously; see **Figures 1-8 in document G8**.

-) The origin of gravitational energy in universe (= 'dark energy' in the universe):

- 27) In the former universe the Little Bang black hole (radius 50 – 100 million km) was formed about 40 – 45 billion (10^9) years ago around the center C of the universe. In this super cold black hole (2.7 kelvin) all mass, matter, kinetic energy / momentum, electric charge and magnetic spin of the universe was is collected by gravity.
- 28) Due to the continued decline of the shrinking velocity to almost zero the gravitation of this Little Bang black hole is decreasing as well making this Little Bang black hole completely unstable because black hole atoms repel each other electrically. See **F1d**. Finally this Little Bang black hole meets the critical black hole gravity (*Cribhgra*) with insufficient gravity to keep this black hole atoms together. Then this Little Bang black hole disintegrates and fall apart into instable black hole atoms. See **G6**.
- 29) At this super cold Little Bang (0 kelvin) all black-hole atoms of this Little Bang black hole fall apart into single protons and electrons which arrange themselves in mono-layers of protons and electrons. See **G6** and **G7**. For a period of 5 – 10 billion (10^9) years this system of nearly infinite number of mono-sphere layers of protons / electrons expands with 1/3rd - 1/2nd of speed of light relative to the center C of the universe.
- 30) These single protons and electrons do not generate any gravity. During this long period of 5 – 10 billion (10^9) years gravity and gravitational-energy are totally absent in the universe!

In this period the universe-sphere-shell expands completely free over a distance of approximately 2.5 - 3 billion light years compared to the C center of the universe without any gravity and gravitational energy! Imagine the consequents!

- 31) From these protons and electrons about 5 – 10 billions of years after the Little Bang the hydrogen atom / molecule is formed. Now something very strange happens. With the hydrogen atom / molecule and velocity gravity is generated! Gravity is back again in the universe. See **figure 1 of document E3-1**.
- 32) With gravity automatically gravitational energy is back again! On this moment a huge amount of gravitational energy relative to the center C is added completely free of charge to the universe cycle! This is the so diligently by science searched 'dark energy'. That energy is nothing else than this free of charge added gravitational energy!
- 33) This free of charge added gravitational energy forms the driving force of each cycle of the universe. See **Law VI** with driving force behind the universe cycle.
- 34) During the shrinking the universe-sphere-shell this gravitational energy is fully used to inhibit completely the rotational speed of the central holes to moving to C to standstill.

3.5 FIFTH UNIVERSE LAW: CLOSED UNIVERSE:

Law V a): Gravity causes the universe is a completely closed system for all normal matter, atoms and all black hole atoms trapped in black holes.

Law V b): All forms of electromagnetic radiation and particle radiation possess mass, charge and magnetic spin! The electric and magnetic fields of stars, galaxies and black holes are the paths of all types of radiation in the universe (except gravity) such deflected to continue to move these types of radiation for 100% within the universe-sphere-shell.

Law V c): In the end, all forms of radiation are reformed to only ordinary protons, electrons and hydrogen in a path within one of the galaxies and around one of the central black holes.

Law V d): The universe is a 100% closed system for matter and mass:
- For all forms of normal and black hole matter / atoms (due to gravity) and
- For all forms of cosmic radiation, particle radiation and electromagnetic radiation of their mass, charge and magnetic spin (by the presence of electric and magnetic fields).

Law V e): Only gravitational radiation and time leave the universe-sphere-shell but these 'radiations' are utterly without mass, charge, magnetic spin and energy.

Explanation of the Laws V a), V b), V c), V d) and V e):

-) Gravity holds matter and black-hole one gathered in a space around C:

- 1) After the formation of the (hydrogen) atom gravity ensures, for the evenly slowing down of the expansion of those ordinary atoms. That deceleration still continues and includes all now configured black holes in the universe that also are slowed down evenly on all sides.
- 2) All energy released during the decelerated expansion is finally largely converted into a rotation-energy of the galaxies. A part converted into gravitational energy of those galaxies and their black holes compared to C. Anyway gravity provides a finite and thus maximum expansion of all ordinary matter and all black hole one in the universe.
- 3) In all galaxies gravity takes care that all matter remains together and that all hydrogen, helium and lithium in stars will fuse to the elements Be and higher. Only \geq Be atoms are incorporated into the central black hole of the galaxy.
- 4) Gravity also ensures that all fused matter of the galaxy \geq Be eventually be fully integrated into the central black hole present in the center of each galaxy. Gravity has no direct effect on the orbits of a) electromagnetic radiation, b) sub atomic particle radiation. Gravity only influences radiation with atoms.
- 5) The 'gravitational lenses' are not caused by gravity but only by electric and magnetic fields around galaxies from there within existing black holes and stars.

-) Charge and magnetic spin hold all forms of radiation together and locked in the universe-sphere-shell:

- 6) All forms of radiation are deflected from the completely straight line with one degree per 10 to 40 millennia. That deflection is so small that this is not measurable on earth.
- 7) Within the gigantic size of the universe such a slight deflection is sufficient to ensure that paths for all forms of electromagnetic radiation (frankinos or neutrinos) and (cosmic) particle radiation (protons, electrons, neutrons, quarks) are deflected to one of about 4 to 20 billion galaxies in the universe that are in the universe-sphere-shell. No form of electromagnetic radiation and / or particle one can leave the universe-sphere-shell final. The universe-sphere-shell is a completely closed system.
- 8) On earth that extremely slight deflection creates completely distorted images from the deep universe. The earth seems to be standing in the center of the universe. In reality, the earth is on the universe-sphere-shell with a radius of 2.5 ± 0.5 billion light years. Both inside and outside are completely empty except for some gravitational radiation.
- 9) The deflection occurs in all forms of electromagnetic radiation and in all types of particle radiation. The universe shell is universal and almost uniformly filled with galaxies and it expands faster and faster. However, these are hoax images that rely on optical illusions.

-) **Around the central black hole all radiation is reformed to only protons and electrons:**

- 10) Finally all forms of radiation spiral in the direction of the central black hole of one of these galaxies. There all forms of electromagnetic radiation and particle one will be transformed to the sole plain ordinary protons and electrons. See **document F1a 2014 F1b and F1c.**
- 11) Hydrogen fuses in steps to elements \geq Be. Through this long path all forms of electromagnetic radiation and particle radiation are incorporated in the central black hole in the form of black-hole atoms during a period of several tens of billions of years, eventually again.

-) **The universe is a closed system for mass, matter, charge, magnetic spin and energy for 100%:**

- 12) The above process of converting the radiation into ordinary protons and electrons through ordinary matter and through nuclear fusion to black hole matter ensures that the universe is completely closed to all forms of radiation except gravitation radiation.
- 13) The radiation space of the universe has a maximum as thick as the universe-sphere-shell itself with an actual radius of 3.0 ± 0.5 billion (10^9) light years around C.
- 14) The radiation space for gravity includes an infinite number of light years around C. For the author this is reason to believe that the universe was unique.
- 15) With the use of the modeling of the universe cycle for each of the 29 phases can be prepared fitting balances for mass, matter and energy, charge and magnetic spin

3.6 THE SIXTH UNIVERSE LAW: THE DRIVING FORCE BEHIND THE UNIVERSE CYCLE:

In black holes an enormous electric tension spring is built due to mutually electric repel. During the Little Bang, when gravity of the black hole becomes less than the Critical black hole gravity or *Cribhgra*, this by black-hole atoms accumulated spring energy is converted to kinetic energy.

During the Little Bang, 40 – 45 billion (10^9) years ago, through a number of five steps the Little Bang black hole falls apart into sphere mono-layers of alternating one proton and one electron thick expanding from C with a universal uniform and constant rate of a third to half the speed of light. The electrons move within their layers also with a velocity of two third of the speed of light versus the protons.

The universe has in that phase no atoms and no gravity and gravitational energy. In this period the universe-sphere-shell expands thus without any gravitational force and energy from around the Little Bang point and center C of the universe.

In the first 5 to 10 billion years after this Little Bang the universe reaches a sphere-symmetrical expansion of about 2.5 – 3 billion light years whereby:

- a) the relative velocity between the electrons and protons decreased to about 2.200 km/s,
- b) the mutual distance between the proton and the electron increased in such a way that universe widely exactly at the same time each proton traps its own electron under the formation of the hydrogen atom.

At the time of formation of the hydrogen atom, the expansion rate is a third to half the speed of light. With the hydrogen atom in combination with the huge expansion rate all the shell-electrons of these hydrogen atoms generate the chemical covalent radical force in addition to gravity at the same time. Gravity also creates a large amount of gravitational energy relative to C! This is the 'dark energy' of the universe!

In the first gravitation-free period, in a completely 'free' manner the universe built up an enormous amount of gravitational energy compared to the Little Bang point C, namely in a distance of about 2.5 billion light-years compared to C.

This gravitational energy relative C is fully and energetically free effectuated at the time gravity with the hydrogen atom returns in the universe. Initially this gravitational energy is sphere-symmetrically distributed over the universe-sphere-shell.

During each cycle the universe generates exactly the same amount of gravitational energy. Gravity decreases the further expansion of the universe. However, the associated gravitational energy is the driving force of the unwinding of the universe cycle.

After the expansion phase the contraction follows, also due to gravity. During the contraction of the universe, this gravitational energy is fully utilized in order to slow down the rotational speed of the massive central black holes until zero eventually.

Net the acceleration of the contraction of the universe is continuously slowed down to a fairly constant rate. This prevents a 'Big Crunch'. All universes end with a super 'soft' Crunch.

The gravitational energy causes the universe cycle always fully arranged and extends all the way and that the universe can ever go through this cycle to another cycle.

Law VI a): in the first period after the Little Bang are present only protons and electrons. Atom and hence gravity and gravitational energy are absent.

Law VI b): At the time of the formation of the hydrogen atom from the protons and electrons, also gravity and gravitational energy relative to C are added to the universe, free of charge.

Law VI c): The driving force behind every universe cycle / *Taeutcycle* consists of this 'free' added gravitational energy to C. Because of that 'free of charge' resulting gravitational energy of the universe this cycle can repeat itself endlessly.

Notes Laws VI a), VI b) and VI c):

- 1) With the formation of the hydrogen atom arises gravity. Suddenly out of nowhere a huge amount of gravitational energy compared to C appears. That amount of gravitational energy is added to the current universe cycle. Through the temporary absence of gravity the universe creates 'freely' its own energy in order that the whole cycle can be unwound fully controlled and energy neutral.

- 2) This explains plausibly also the enormity of currently observed 'dark' energy. This dark energy is nothing but this to the universe-sphere-shell added gravitational energy relative to C!
- 3) That completely 'free of charge' gotten gravitational energy also ensures that the general law of conservation of energy is not valid in the scale of the universe and throughout the universe cycle. However, viewed over one cycle!
- 4) During the universe cycle the gravitational energy is fully utilized to curb the continuous acceleration of contraction to a more or less constant contraction-velocity of approximately 0.1 to 0.15 Mm/s and deceleration takes place during virtually the entire contraction of the universe. Therefore the universe shrinks with a relatively constant speed. This prevents a 'Big Crunch'!
- 5) Other than the general law of conservation of energy, the laws of conservation of mass, charge and magnetic spin but continued to apply on the scale of the universe.

3.7 THE SEVENTH UNIVERSE LAW:

THE UNIVERSE AS A CYCLE OF MATTER, TIME AND SPACE:

The theory of relativity combines space, time and gravity to a single set of basic variables. Time and space are indeed quite basic variables always being present. Both are inextricably linked to the universe cycle. On the scale of the universe, the expansion of matter goes sphere symmetrically.

The space of the universe-sphere-shell is, by definition, sphere and curved on all sides in combination with the same linear expansion rate or contraction-velocity.

Our three dimensionally spatial image on earth cannot be fitted to the spatial structure of the universe!

Time is the period that has elapsed since the occurrence of the last Little Bang. Space is the place where matter is located relative to C, and later on in relation to the points of rotation **R1, R2, R3, R4 and R5** within galaxies and the points of rotation at the level of galaxies among each other. In the universe cycle time and space into one, combined with matter, the forces of matter and the radial and transverse velocities, kinetic energy and momentum.

In the first 5 to 10 billion years after the Little Bang the atom is missing and hence gravity. In contrast to time and space gravity is not an independent elementary quantity that is continuously present in the universe. Gravity is only one quantity derived from the atom and speed of atoms in the universe.

Unfortunately, **Einstein** did not recognize the essence nor the origin of gravity on atoms. That also applies in 2015 to the current science. The essence and origin of gravitation (see **document E3 and E3-1**) have far-reaching consequences for the (un)sustainability of relativity.

The universe cycle consists of the basic combination of: a) matter and mass, b) forces on matter, c) forms of energy, d) time elapsed since the Little Bang, e) the place of matter compared to C, f) linear speed with kinetic energy and g) angular velocity with rotation-

energy. In this basic combination gravity lacks because gravity is not continuously present in the universe. The theory of relativity is therefore incompatible with the universe cycle.

Law VII a): Time is a cyclic phenomenon beginning at the Little Bang and ending at the next Little Bang. For all electromagnetic radiation, particle radiation all, all the ordinary matter, and all black-hole matter always applies the same overall universe (clock) time compared to the Little Bang and the center C of the universe.

Law VII b): For all the protons and electrons present in both normal matter as well as in black-and-hole matter the universe clock time wraps always with exactly the same constant speed. Everywhere applies under all circumstances always exactly the same linear advancing universe clock time.

Law VII c): Space of the universe is also a cyclic phenomenon beginning at the time of the Little Bang from a black hole with a radius of 0.05 to 0.10 billion (10^9) km and ending at the next Little Bang on C with exactly the same black hole. All matter is still roughly the same distance from C.

Law VII d): Considered from the center C in universe differences of time are impossible. Always the spherically symmetrical space is almost of uniform construction. Considered from C both the universe clock time and space equals everywhere. From C time and space are absolute.

Law VII e): Considered from every other point in the universe (i.e. the earth) time and space are never absolute but always relative.

Notes Laws VII a), VII b), VII c), VII d) and VII e):

-) The minimum and maximum values of physical parameters such as time, space and energy:

- 1) The universe reaches its maximum expansion at approximately 300 to 350 billion (10^9) years after the Little Bang in a range of seemingly 3.0 to 3.5 billion light-years. After reaching the extreme expansion of the universe it contracts due to gravity over a period of 2 to 3×10^{12} years until finally again in exactly the same Little Bang black hole that in the final phase get again exactly the same radius of approximately 0.05 to 0.10 billion km.
- 2) Time reaches its maximum at the moment just before the next Little Bang and after a period of $2 - 3 \times 10^{12}$ years. At the next Little Bang the universe clock time of the last universe cycle ends in exactly the same time as in all previous and all still ahead universe cycles.
- 3) Time is both: linked to
 - a) the mass and matter of protons and electrons and
 - b) the position of ordinary and of black-hole matter compared to C.The place is the location where matter will be compared to C for the settlement of the universe cycle.

-) **No direct relationship between the universe clock time, space and gravity:**
- 4) Time has no direct or indirect relationship with gravity. The first 5 to 10 billion years of the universe cycle gravity is absent while the universe clock time runs evenly and linearly. Both from the earth as seen from C there is absolutely no direct or indirect relationship between time, space and gravity in sharp contrast with the general theory of relativity according to **Einstein**. Going through the universe cycle is not possible within the framework of the theory of relativity!
-) **No differences possible in the universe clock time; from C time is absolute.**
Within universe-sphere-shell time is always relative:
- 5) For each proton and electron in the universe the universe clock time wraps with exactly on the same course and speed relative to C. The center C is the origin, so the beginning, of time and space. All protons and electrons and hence all atoms possess throughout the universe cycle always the same linear advancing universe clock time exactly compared C.
 - 6) Considered from C in the universe between matter differences of time are impossible. Considered from C in the universe clock time is absolute and nowhere or ever relative. During theoretical considerations about time and space the Little Bang point C is regarded as the only permitted place for doing observations and measurements, since only there the time is the same anywhere. See **document G2**.
 - 7) **Einstein** was unaware that his theoretical considerations could only be done from the center C of the universe. He made his theoretical considerations from any other place in the universe than C, and moved this observation point also again. Thus Einstein's theory of relativity created differences in time through itself. Such time differences are not possible in the universe model of the author.
 - 8) The by **Einstein** derived time differences, measured on Earth, do not arise when one consistently measures from C. The point of measurement affects significantly the convenience of the measurement! The statements in the theory of relativity with respect to time, space and gravity do not respect the author's universe model.
 - 9) **Document G5** elaborates on the errors in the assumptions of the theory of relativity

3.8 THE EIGHTH UNIVERSE LAW; BLACK HOLES AND CRITICAL GRAVITY:

The 8th universe law treats black hole matter and black holes for which the following laws apply:

Law VIII a): Black holes consist of ordinary atoms being collapsed from the inside to near the atomic nucleus. It is a collapse of the electron-shells of the atom and that transforms it into a *black hole atom*. That is only possible

- at huge gravitational pressure and
- atoms must possess at least two electron pairs; so the smallest atom is the element beryllium.

Law VIII b): Black hole atoms are inherently unstable and disintegrate into loose black hole atoms and then into protons and electrons unless sufficient gravitational pressure is present to keep the black-hole atoms together and locked up in a black hole. Black hole atoms only remain stable if a black hole itself generates enough gravity, more than the critical black hole gravity or *Cribhgra*. This critical gravity is consistent with the gravity of a black hole with a radius of several kilometers and with an equatorial rotation speed of approximately one third of the speed of light.

Law VIII c): Atoms in black holes - and so a black hole - are close to 0 kelvin and therefore they cannot emit electromagnetic radiation of light but does emit a little infrared (2,7 kelvin), particle radiation and gravitational radiation.

Law VIII d): The shell-electrons of black-hole atoms move near the speed of light around the atomic nucleus. That is why these shell-electrons cannot absorb or emit electromagnetic radiation.

Black holes reflect all forms of electromagnetic radiation, particle radiation and infrared for 100%. In fact black holes are perfect mirrors.

Law VIII e): Black holes may freely emit their gravitational radiation generated by their black-hole atoms in combination with speeds of the black hole in the universe and their own angular rate. Black holes can freely absorb the gravity emitted by other celestial bodies and other black holes.

Law VIII f): The protons and electrons of black-hole matter always have exactly the same linear advancing universe clock time compared to C as the protons and electrons in ordinary elements. Black holes cannot change the local time, the space around them or inside the black hole itself.

Law VIII g): Black holes have the same event horizon as ordinary celestial bodies.

Explanation Laws VIII a), b), c), d), e), f) and g):

-) With black-hole atoms only gravity is relevant:

- 1) In black-hole atoms the electron-shells have collapsed right up near the nucleus. During the collapse of the electron-shells all electron pairs disintegrated into single electrons and the Van der Waals/London force of the ordinary atom disappears completely.
- 2) The motions of a black hole in the universe relative to C cause that the shell-electrons of all black hole atoms in it are disturbed and get a deviation. In protest against this deviation all shell-electrons of black-hole atoms generate gravity and other speed-dependent of kinetic energy related forces in principle as with ordinary atoms. See **document F1e**.
- 3) In black holes only gravity is relevant. It is linearly related to the translation velocity and the angular speed of the black hole.
- 4) a) Due to their high equatorial speed of rotation of approximately one third of the speed of light black holes generate much more rotation-gravity in comparison with the earth.
b) Only matching components of gravity attract each other. See **document E3 and E3-1**.

5) Due to 4a) central black holes of the galaxies contain much more matter and mass than on the basis of gravity-measurements from Earth.

-) Atoms in a black-hole state are super cold and are perfect mirrors:

6) The nucleus of a black hole atom is totally captured within its own electron-shells due to the collapse of these electron-shells. The atomic nucleus has virtually no room for vibration. So every atom in a black-hole state should be necessarily near absolute zero and presumably near 2.7 kelvin, the background temperature of the universe.

7) Due to this extremely low temperature black-hole atoms cannot emit electromagnetic radiation such as light from the electron-shells.

8) In black-hole atoms the shell-electrons orbit with approximately the speed of light around the nucleus. At such speeds, the shell-electrons can no longer jump to another orbit. So for this second reason it cannot emit electromagnetic radiation. So the black hole is totally black.

9) During nuclear stabilization a black-hole atom can emit particles but they must possess extremely high kinetic energy to pass through the electron-shells of the black-hole atom. In practice, such a nuclear stabilization only happens in the outermost atomic layers of the black hole. The high-energy cosmic particle radiation in the universe is in part derived from black holes, particularly of the central black holes in galaxies. That particle radiation is released during the stabilization of unstable black hole nuclei. In these central black holes are plenty of unstable black-hole atoms present.

10) Neither the shell-electrons nor the nucleus of black-hole atoms can absorb externally coming radiation. Black hole atoms and black holes form so the most ideal mirror for all types of electromagnetic radiation and for all kinds of particle radiation.

11) Black holes can only emit gravitational radiation undisturbed and can also absorb this undisturbed gravity. Black holes react completely differently to gravity than to electromagnetic radiation and particle radiation.

12) In black-hole atoms all shell-electrons move at light speed around the nucleus and two single electrons can no longer bind as a pair of electrons. That is why in black-hole atoms any bond is impossible. All black-hole elements are both physically and chemically absolutely inert.

13) Black-hole atoms behave physically like a very close atomic stacked 'liquid' which can mutually move relative to each other. In black holes are convection flows are possible.

-) Resilience / spring tension; black holes cannot collapse into a singularity:

14) In black holes the negatively charged electron-shells of the existing black-hole atoms repel mutually making a huge electric spring tension. The gravity of black holes resists this repel-tension between the black-hole atoms. Gravity prevents the black hole to disintegrate into loose unstable black-hole atoms.

15) This spring tension between the black-hole atoms mutually also prevents further collapse of the spatial structures of black-hole atoms to the smaller size of a particle. In spite of the theory the volume of black holes cannot be further reduced to a singularity.

-) Black hole atoms are only stable with a minimal amount of gravity:

16) In black-hole atoms the shell-electrons move at the speed of light in their paths that are directly situated around the atomic nuclei. These black hole atoms with such rapid shell-electrons are inherently unstable. Black hole atoms can only be maintained in an environment of a black hole that itself generate sufficient gravity.

17) The gravity of the black hole atoms causes the black-hole atoms remain together in a black hole. In order to overcome the spring tension in the black hole a minimal amount of gravity is required, the critical black hole gravity. Black holes can only stay if their gravity is stronger than the critical black hole gravity (*Cribhgra*).

18) Is the black hole too small or is its angular speed is too low then the gravity of the black hole is less than the critical one. Then the electric repel beats the gravity of the black hole and is initially set in loose unstable black-hole atoms. Next those loose unstable black-hole atoms fall apart immediately into protons, electrons, kinetic energy and radiation. That dramatic 'moment' happens at the Little Bang.

-) The Critical black hole gravity (*Cribhgra*):

19) To find quantitative interpretation of the critical black hole gravity still takes place. The author takes into account a minimum value for critical value that corresponds to the gravity of the smallest possible black hole with a radius of several km in combination with an equatorial speed of approximately one third of the speed of light.

20) So the critical gravity depends on a minimum amount of kinetic energy/rotation of the black hole in combination with a minimum amount of mass, matter (atoms). Over time *Cribhgra* is to derive theoretical and calculating. The gravity of regular (smaller) black holes falling below critical is accompanied by a huge explosion. Only the decay of the Little Bang black hole (the biggest one ever) and the disintegration of the black-hole atoms is a highly structured and completely controlled running 'explosion'.

At the time of the Little Bang all the movements are virtually gone (especially the contraction-speed) and it is thus also the gravity in the universe almost completely disappeared. During the Little Bang gravity even disappears completely!

-) All matter is exactly the same universe clock time compared to C:

21) All protons and electrons of the atoms in a black-hole state have compared to C always exactly the same universe clock time when ordinary matter outside the black hole. At the end of the universe due to gravity all matter and all the black holes of the universe gather again *exactly at the same time* to the center C for the next Little Bang.

22) Gravity is the only radiation of the atom without mass, charge and magnetic spin and energy. Gravity is not bound to speed limitations. Gravity travels much faster than light through space. It is expected that the speed of gravity is even infinite!

23) The rotation-gravity of black holes is large but this huge gravity itself is not able to reduce the time and / or to bend space around the black hole.

24) If the deformation of space and time should be possible then all matter in the universe cannot return simultaneously on the Little Bang point to start a new Little Bang. In that case, the universe cycle can no longer be unwound, as described in **document G7**. Deformation of space and time by gravity is part of the "myths" that result from the theory of relativity

3.9 THE NINTH UNIVERSE LAW; THE UNIVERSE CYCLE:

Within the universe cycle or *Taeutcycle* a fully integrated settlement between the 12 basic parameters of the universe happen. Some of these variables are: 1) matter and mass, 2) forces on matter, 3) time 4) space in the universe, 5) linear movements, rotational movements and their associated kinetic energies and 6) gravitational energy. Those relations are reflected in 29 consecutive regular phases of the universe cycle.

Law IX a) The settlement of the universe cycle is based on 12 variables: 1) matter, 2) basic quantities mass, charge and magnetic spin, 3) other non elemental forces on matter (including gravity), 4) electrical particles and magnetic ones including beams of them , 5) movements and their kinetic energy, 6), gravitational energy, 7) impulse and angular momentum, 8) the inner radius and the outer one of the universe-sphere-shell, 9), so also the thickness of it, 10), the time, 11), the temperature and 12) and the amount of deflection of electromagnetic radiation and particle radiation.

Law IX b): During the universe cycle the 12 basic variables describe

- the long-term physical processes and
- the short-term chemical, and nuclear-physical events.

These 12 basic parameters are always linked to each other and form together a single, integrated model and a whole for each phase, both of each phase of the universe cycle as well as for the universe cycle in totality.

Law IX c) The settlement of every universe cycle takes place via structured always the same 29 phases. The settlement of each phase in this cycle and the transition to the next phase, the process is in a fully predictable manner and, after modeling on a pre-set time to indicate.

Law IX d) At the time of the Little Bang all matter, charge, magnetic spin and kinetic energy of the universe dwell exactly around the center C. C is the unique center of the universe. C and the Little Bang are to be taken per definition as a starting point and origin of time in the universe and the origin of space used by matter in relation to C.

Law IX e) For every universe cycle the center C remains the same starting point of the universe with the Little Bang. C is also the end of each cycle of the universe.

Notes Laws IX a), IX b), IX c) IX d) and IX e):

- 1) The location and movements of matter within the space in the universe are strictly regulated by the 12 basic parameters and the settlement of the 29 phases in the universe cycle or the *Taeutcycle*.

- 2) The time of the Little Bang regarded as the only starting point and comparison of time or of the universe clock time. It also forms the exact same end of the universe cycle and restart the next cycle of the universe.
- 3) The universe laws describe the framework within which the universe cycle takes place and in which this cycle can repeat itself endlessly in a completely energy-neutral way and always at almost exactly the same way.
- 4) a) In **documents F1a 2014 F1b and F1c** the author has given an explanation for the phenomenon of (anti) mass and (anti) matter.
b) How the first cycle of the universe was created, has not yet been explained. Probably there has never been a beginning.
- 5) Within the universe cycle practically all phenomena can be explained in principle. In the universe there are no unexplained or mystical forces, mass, matter and energies. All mass and matter, charge, spin and energy is eligible and is always genuine.

*** 4) DISCUSSION:**

- 1) According to the author with the formation of the hydrogen atom gravity is formed and completely suddenly a huge amount of gravitational energy is added to the energy balance of the universe. During the contraction of the universe that gravitational energy is fully reused to slow down the rotational speed of the central black holes to a halt. At the end of the universe cycle this gravitational energy via nuclear fusion of shell-electrons again partly disappeared and partly consumed. At the end of each cycle, all the gravitational energy is completely disappeared. The currently existing in the Universe gravitational energy is a major component of the 'dark'-energy. That problem has been solved in this.
- 2) The during the universe cycle all of a sudden a large amount of gravitational energy is created and it is added to the universe creates for almost all physicists and chemists uncertainty. This gravitational energy affects apparently the foundation of the current physics. On the scale of the universe, however, this is not the case. Overall review is completed the cycle universe in a completely energy-neutral manner.
- 3) The science will have to regard black holes as perfectly normal celestial bodies with well to describe physical characteristics. Dispose black holes of various myths and scientifically accepted 'madness' as distorting time and space or space-time. Black holes do not change the universe clock time and / or the space around them in any way.
- 4) Especially the myth that the gravity of black holes is so great that light does not get the chance to escape from a black hole, is bothersome. In fact all compact celestial bodies like pulsars and white dwarfs and black holes are dense and a temperature close to absolute zero and is probably equal to the background temperature of the universe being 2.7 kelvin. Purely due to that extreme low temperature they cannot emit electromagnetic radiation of light. But they can emit infrared (2,7 kelvin), gravity and particle radiation.

- 5) The shell-electrons of black-hole atoms move almost at the speed of light around their nucleus. That is also a reason why a black hole cannot emit (or absorb) light photons. In fact black holes are 100% perfect mirrors.
- 6) Gravity is the only radiation without mass, charge, magnetic spin and kinetic energy. .
 - Gravity is the only radiation black holes that can emit and absorb unhindered.
 - Black holes obey the law of gravitation **Newton / Einstein** and the gravitational formulas of **Roos / Uiterwijk Winkel**.
 - Gravity moves at an infinite speed through the infinite universe.
- 7) Black holes play a very useful and indispensable function within the universe cycle. In the current scientific thinking it is completely passed by.
- 8) Due to radioactive decay of nuclei of black hole atoms, black holes can emit high energy particles but that can only occur from the outer atomic layers of the black hole and in the form of high-energy cosmic (particle) radiation. The full nuclear stabilization of the big central black holes of the galaxies takes place very slowly and therefore lasts several hundred billions (10^9) of years.
- 9) Because of the special role of gravity, each universe cycle ends with the same amount of 'resilience' and energy. During the Little Bang, this 'spring' tension of the black hole atoms among each other and the kinetic energy of the shell-electrons are passed to the next cycle. Each universe start with exactly the same number of protons and electrons, and with the same amount of radial impulse and transverse angular momentum.
- 10) During each cycle always the same maximal expansion and minimal contraction are achieved and that is done at the same time after the Little Bang. Each corresponding phase in the universe cycle and the last cycle as a whole to energetic reasons always exactly the same duration.
- 11) Modeling of the universe cycle is necessary in order to establish the 12 basic parameters quantitatively and conditions of each phase in the universe cycle. Through modeling the principles of the universe as a whole cycle can be derived quantitatively.

***5. CONCLUSIONS:**

- 1) The universe laws describe the framework within which the universe cycle takes place and in which this cycle can repeat itself endlessly and always the same way. The universe laws make the universe and the universe cycle understandable.
- 2) Through modeling the universe cycle, all 12 basic parameters and the limiting conditions of the universe eventually can be filled quantitative for each of the 29 phases and for the universe cycle as a whole.
- 3) The modeling of the universe cycle also ensures that the universe is stripped of all myths about: a) 'dark matter', b) 'dark energy' and c) that black holes could distort space and time.
('Dark matter' is solved by adding $\cos \alpha$ to the used gravity formulas; 'dark energy is nothing else than gravitational energy versus the center C of the universe!)

- 4) Time and distance and thus the size of the universe-sphere-shell are physically not infinite but finite quantities with a minimum and maximum value. Everywhere and ever in the universe-sphere-shell goes exactly the same universe clock time relative to the center C of the universe.
- 5) For mass and matter, the outer radius of the universe-sphere-shell around C ostensibly 2.5 to 3.5 billion (10^9) light years. If electromagnetic radiation would move pure linearly, at each cycle the universe loses mass, charge, magnetic spin and kinetic energy. Then the universe would not be a closed system.
- 6) All electromagnetic radiation and particle radiation is subject to electrical and magnetic fields of galaxies. In the universe fields take care for a deviation in the path of radiation with an average of only 1 degree every 10 to 40 millennia. Then all forms of electromagnetic radiation and particle radiation are deflected and move in 'spiral' paths through the universe-sphere-shell.
- 7) Through deflection which the universe is a factor 4 - 6 times smaller than until now has been adopted. The radius of the universe-sphere-shell is somewhere between 2.5 - 3.0 billion (10^9) light years. In this 'small' universe the universe laws and the energy-neutral universe cycle apply.
- 8) All forms of radiation are bent back toward the universe-sphere-shell and there in a period of 14 – 18 billion years transformed back into protons, electrons and then hydrogen.
- 9) Gravitational radiation has no mass, charge, magnetic spin and kinetic energy. Unlike all other forms of radiation this gravitational 'radiation' is not bent. As only gravitational 'radiation' leaves the universe-sphere at speeds far greater than the speed of light. Only for this massless gravitational radiation the universe is literally limitless space of with a radius of literally an infinite number of light years.
- 10) -From C considered the universe clock time is always equal in each point.
-Time and space are absolute for mass and matter always.
- From any other place in the universe by definition the local time is relative to the absolute universe clock time of C and space is experienced also relatively to necessarily experiencing the absolute space from C.
- 11) The Universe cycle is incompatible with **Einstein's** theory of relativity. Accepting the universe cycle means relinquish the theory of relativity. The last century was marked by **Einstein's** theory of relativity. The next decades the physics will be in the sign of the universe cycle!

Zwijndrecht, July 3, 2015.

Ir. A.P.B. Uiterwijk Winkel *) **)

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***) The author had great admiration for **Einstein**.