

16 April 2019

# Universe cycle; quantitative bridge between theory of relativity / quantum mechanics:

## \*1) INTRODUCTION AND PROBLEM DEFINITION:

### -) The theory of relativity (RT):

a) On *micro-scale* **Einstein's** theory of relativity (RT) mathematically describes the relationship between *mass and energy* by the formula  $E = mc^2$ . Through that formula **Einstein** proposes mass *mathematically* as 100% equivalent to energy.

Unfortunately he didn't elaborate the physically transitions steps between mass ↔ energy as a step by step process! In the RT these different transitions steps from mass ↔ energy cannot be followed in physical terms! Only mathematically and presented as just one step!

b) In the RT and *macro-scale* of the universe *gravitation / gravity* is mathematically seen the resultant of the curvature of space and time (spacetime) of the universe. The RT just offers a mathematically approach.

The RT lacks a *physical explanation* for:

- a) the origin of the phenomena mass and anti-mass and related
- b) most elementary forces of mass: 1) positive / negative electric charge, 2) parallel / antiparallel magnetic spin ↑ ↓,
- c) the origin of gravity.

### -) Quantum mechanics (QM):

Quantum mechanics (QM) *mathematically* describes the physical and chemical forces, and bonds active at the *micro-scale* of the atom / molecule and smaller. Again, there is no physically explanation for the origin of these forces at the atom.

QM lacks a macroscale view.

For nearly a century Science attempts coupling **Einstein's Theory of relativity** (RT) to the *Quantum mechanics* (QM) by **Bohr / Schrödinger** and thus to unify both theories. Up till now (April 2019) without success.

## \*2) QUESTION:

### -) Is coupling between RT and QM possible?:

Is coupling of these two fundamental theories in Science possible or not? Simplified this results in the question: do a) mass, b) electric charge, c) magnetic spin, d) gravitation and e) the physical and chemical forces / bonds of atoms have one common base / origin or not? And if so; what is that common base?

Which general physically / energetically structure is present in the structures of:  
a) mass / charge / spin of the elementary Higgs particles of the proton / electron,  
b) the origin of most elementary forces: 1) electrical charge and 2) magnetic spin,  
c) structure of matter / antimatter (protons / electrons / neutrons),  
d) gravitation (quantum-gravitation),  
e) the physical / chemical forces of atoms and their bonds (quantum mechanics), and  
f) the corresponding physical constants of those forces?

**-) Remarks author:**

Up to 2019 inside Sciences still missing purely physically explanations for the phenomena: *mass , matter, gravitation and the origin of the curvature of space and time (spacetime)*. **Documents G5 and J2** English [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) .

In **Document F1a 2014** English the author elaborated a qualitative step by step relation between kinetic energy / rotations of Higgs particles and the phenomena of mass, electric charge and magnetic spin. Mass, charge and spin increases / decreases the level of kinetic energy!

In **Documents E3, E3-1 and E3-2** English is shown that the phenomenon gravity isn't generated by mass and no way is related to the curvature of space and time. Gravity is generated by the 'shell'-electrons of atoms due to speed of the atom in the universe. Gravity isn't an elementary force in the universe.

In **Document F1d** the author derived physical and chemical forces are generated by the 'shell'-electrons of atoms as well due to kinetic energy of the atom in the universe. For the author a general relation exists between mass / gravity / forces of the atom and speed / kinetic energy.

### **3) HIGGS PARTICLES; ORIGIN MOST ELEMENTARY MASS, ELECTRIC CHARGE AND MAGNETIC SPIN:**

**-) In Science lacks a physically explanation for mass, charge, spin, matter and gravitation:**

Since **Newton** in Science gravitation has always been inextricably linked directly to mass. In the period 1905 - 1918 **Einstein** was still unknown with the atom. The universe was just one Milky Way galaxy wide.

In his mathematically derived theory of relativity (RT) **Einstein** proposed the formula  $E = mc^2$  where mass is 100% equivalent to energy. Gravitation is only elaborated mathematically; not physically!

**Einstein** had *no purely physical explanation* for the phenomena of a) mass, b) electrical charge, c) magnetic spin, d) matter and e) gravity.

Gravitation was attributed and explained at the basis of the curvature of space and time (spacetime) in that one galaxy wide universe. **Einstein** had *no purely physical explanation* for the structure of space and time! Starting with the Big Bang the universe must have the structure of a balloon. Now we know our gigantic universe is locally completely flat in accordance with the structure of such a gigantic balloon.

### 3.1 PHYSICALLY ORIGIN MASS, CHARGE AND SPIN ON HIGGS LEVEL:

#### -) **The origin at Higgs level of mass , charge and spin:**

Anno 2019 both in the RT as well in Science still missing a good and conclusive explanation of how **Einstein's** transition of: a) mass into energy or b) energy into mass actually takes place physically and *incrementally* step by step!

In the *Standard Model (SM)* anno 2019 the mass of the proton Higgs particle is completely in itself and exclusively linked to energy (1 proton Higgs  $\equiv$  126 GeV ).

CERN didn't mentioned / recorded: a) the presence of the anti-proton Higgs particle, b) nor linked the proton Higgs particle with *electric charge* and *magnetic spin* as the author elaborated in **Document F1a 2014** [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) .

In the *Standard Model anno 2019* mass is a completely self-contained phenomenon disconnected from the two elementary forces: 1) electric charge, and 2) elementary magnetic spin! That is rather strange!

#### -) **Whole universe based on just 4 super-symmetrically Higgs particles:**

In **document F1a 2014 + figures 1 – 6** the author describes an universe where all mass and matter is constructed 100% at the basis of just:

- a) two super-symmetrically proton Higgs particles and
- b) two super-symmetrically electron Higgs particles as well.

Collisions in particle accelerators destroy this super-symmetry completely.

That is why **Uiterwijk Winkel's** Standard Model is just theoretical and only consists of four (2 x 2) super-symmetrically Higgs particles. With these four Higgs particles the proton, electron and hydrogen are to be constructed as well the particles of the nowadays in Science accepted *Standard Model 2019*. All matter in the universe is based at these four Higgs.

#### -) **Kinetic energy Higgs results in three rotations / deformations:**

Because of a fixed amount of *internal* kinetic energy all Higgs particles rotate around their three, maximum possible, axes of rotation. This results in three fixed elementary rotation speeds:

- ) one fast rotation / angular speed around the longitudinal axis generating mass and electrically charge and
- ) two equal but much slower rotations around the two width axes generating together only magnetic spin.

Those mathematically to be modeled three fixed rotational speeds result at Higgs level into three permanent deformations of all Higgs particles inside the proton and the Higgs particles inside the electron. Those three rotations results in two versions one clockwise or one anticlockwise.

As a final result, a maximum of only *two proton Higgs* and *two electron Higgs* are possible. Those four Higgs particles are two by two mirror-shaped and thus 100% super-symmetrical! **Figures 1 – 6 Document F1a 2014.**

#### -) **Explanation origin mass, charge and spin on Higgs particles:**

In order to combat / control these three deformations of Higgs particles by kinetic energy / anti-kinetic energy these two mirror-image and super-symmetrical proton Higgs particles generate two fixed combinations of: a) mass or anti- mass , b) positive

or negative electric charge and c) magnetic spin  $\uparrow$  or  $\downarrow$ . Proton Higgs or anti proton Higgs. This applies to both mirror-image and super-symmetrical electron Higgs as well.

**-) Exclusively during collisions in particle accelerators this super-symmetry is destroyed:**

Normally everywhere in the universe / USS all matter is 100% based on these four two by two super-symmetrically Higgs particles. Only during collisions in *particle accelerators*, due to the enormous released amount of kinetic energy, this super-symmetry at proton Higgs level is completely disrupted and destroyed. These released high energetically proton particles show much higher mass, electric charge and magnetic spin compared the moment before the collision. So these freed and disturbed particles of the proton are extremely reactive.

*These from protons during collisions freed particles aren't anyhow representative for the particles in the protons just before the collision!*

**Document F1a 2014 and Figure 2a** just *qualitatively* describes the relationship between kinetic energy and the emergence of elementary phenomena: 1) mass / anti-mass, 2) + / - electrical charge and 3) magnetic spin  $\uparrow$  /  $\downarrow$  on these four Higgs particles.

This results in an universe based at just two super-symmetrically Higgs proton particles and two super-symmetrical electron Higgs. Just one level with four elementary Higgs particles!

**-) Mathematical models of proton-Higgs and electron-Higgs particles:**

These two proton-Higgs and two electron-Higgs can be mathematically modelled. These models link mass, electric charge and magnetic spin to kinetic energy *without any equivalence* between mass and energy as **Einstein** proposed.

These models will show a *step by step* transition from kinetic energy into rotation speed in *particle accelerators* and increased / decreased combinations of:

1) (anti)mass, 2) + / -electric charge and 3) magnetic spin  $\downarrow$  /  $\uparrow$ .

These models show step by step the physical relationship between kinetic energy and mass, electric charge and magnetic spin as a normally four unity. **Figure 2a**

**Document F1a 2014.**

For normal circumstances these four elementary Higgs particles models of the proton / electron should result in equal quantity of electric charge, and magnetic spin. These models will result in a mass difference with a factor of about two thousand (in fact 1853 x) between both proton Higgs and both electron Higgs!

### **3.2 AT HIGGS LEVEL ANNIHILATION ISN'T POSSIBLE!:**

**-) Mass and anti-mass cannot annihilate; so  $E = mc^2$  doesn't hold!:**

Special is that the undisturbed Higgs particle and its anti Higgs particle of the proton attract each other through electric charge and thereby form bonds. At the same moment these two proton Higgs reject each other by their equal magnetic spin  $\uparrow$  or  $\downarrow$ .

Overall both Higgs form strong stabile electrically bonds in which both proton Higgs or electron Higgs don't really touch each other because their equal spin. So in practice

these two proton Higgs particles cannot mutually cancel each other's opposing three basic rotations! In other words both super-symmetrically proton Higgs or both electron Higgs cannot annihilate! At Higgs level these elementary rotations cannot be transferred into free energy / heat and photons!

That has far-reaching consequences! **Einstein's** formula  $E = mc^2$  don't hold for  $m = \text{elementary mass} / \text{anti mass}$ ! Annihilation or bonds between proton Higgs and electron Higgs aren't possible as well.

Now **Einstein's** famous formula  $E = mc^2$  can only apply to annihilation of equivalent matter / anti-matter! **Document F1c + figures [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) +document G5.**

#### **\*4) WITHS ELEMENTARY HIGGS JUST NEUTRINO'S, PHOTONS AND FINALLY PROTONS AND ELECTRONS ARE TO CONSTRUCT:**

##### **-) With Higgs particles, just neutrinos and photons of the proton and the electron can be built:**

With these two super-symmetrical proton Higgs, and two super-symmetrical electron Higgs are to construct larger parts like the *neutrinos and photons* of the proton and those related to the electron. These constructions of neutrinos and photons consist of an equivalent number of ordinary Higgs particles / anti Higgs particles.

At their outside these neutrinos and photons of the proton (= *infrared*), and neutrinos and photons of the electron (= *light*) have *no measurable* mass, electric charge and magnetic spin while inside these particles the phenomena mass, electric charge and magnetic spin are still present! **Document F1b + figures.** (Bindings between proton Higgs and electron Higgs aren't possible because of differences in charge either spin)!

##### **-) With neutrinos and photons only proto-protons and proto-electrons can be built:**

A higher level with these neutrinos and photons are to build only structures of quarks of the proton / antiproton or separately quarks of the electron / positron.

With three of these quarks just to construct the proto-proton and proto-electron. These constructions still aren't to qualify as matter or anti-matter. **Document F1c + figures**

##### **-) In universe only protons and electrons present:**

These proto-protons and proto-electrons only transfer into matter of antimatter by adding  $E = mc^2$  rotational energy to these constructions. In universe and inside the USS this winding-up process of protons and electrons occurs over a period of about 13.6 – 13.8 billion years. During that period these proto-protons and proto-electrons passing the electric / magnetic fields of billions of stars and galaxies present in the universe-spherical-shell (USS). (All neutrino's and photons are forced staying inside the USS and slightly diffracted by the present hydrogen and helium gasses. Neutrino's and photons cannot escape the USS both sides! For that reason the universe / USS is a 100% closed system for mass, matter and kinetic energy!)

In the universe and within the USS standard exclusively structures of ordinary protons and electrons are formed. No antiprotons or positrons. **Document F1c + figures .**

(1 neutron = 1 proton + 1 electron)

**-) Transformation mass →matter / antimatter:**

These constructions of the proton / antiproton and of the electron / positron only acquire the property of *matter or anti - matter* when a total of  $E = \frac{1}{2} mc^2$  of rotational energy has been added at the rotations of the proton / electron mainly around their longitudinal axis and partly around both width axes.

In case matter / antimatter that rotations around the longitudinal axis are clockwise or ant-clockwise near the speed of light. In the universe / USS that winding up the rotations with  $E = \frac{1}{2} mc^2$  just results in ordinary protons / electrons and finally normal hydrogen!

**-) In time all emitted neutrino's and photons disappear; from Earth our 'event' horizon USS limited to just 13.6 billion lightyears:**

By hydrogen and helium all neutrino's and photons are forced moving inside the USS where in time they transform towards protons / electrons and new hydrogen! In the universe / USS adding that rotational energy and converting neutrinos and photons into new protons, electrons and new hydrogen takes a period of about 13.6 billion years.

For this reason in time all neutrino's and photons disappear! Therefore our 'event'-horizon at the history of the universe is limited to a maximum of about 13.8 billion light years.

Most of the history of this universe (now at least 40 – 45 billion years!) is invisible. However in **the phases 1 – 23 documents G7 and G8 English** the author derived and described that whole history in detail.

**-) Annihilation matter / antimatter; no transformation of mass into energy as well;**

At annihilation of equivalent *matter / antimatter* those rotations with the speed of light clockwise or counter clockwise with the speed of light are mutually lifted. The moment of annihilation, the constructions of the present (anti)protons, (anti)electrons and (anti)neutrons fall apart into their original building blocks of neutrinos and photons from which originally they were constructed. In case annihilation occurs an amount of  $2 \times \frac{1}{2} mc^2$  or  $E = mc^2$  energy is freed as neutrino's and photons (Both Majorana particles as explained in **document F1b**).

During this annihilation no basic mass is converted into energy as well! Although apparently that occurs! Mass isn't convertible into energy! This results in fundamental adjustments in the theory of relativity. In Science nobody is waiting for that.

**4.1 BUILDING OF ATOMS IN UNIVERSE EXCLUSIVE WITH PROTONS AND ELECTRONS; PERIODIC TABLE STARTS FROM HYDROGEN AND UNIVERSEWIDE EXACTLY THE SAME:**

**-) Hydrogen as the start of the elements of the periodic table:**

Starting with just two building blocks of protons and electrons, at first exclusively hydrogen atoms / molecules can be formed. Not any higher elements nor other isotopes of hydrogen! These higher atoms / elements of the periodic table can only be formed through nuclear fusion of hydrogen inside stars or during supernova explosions.

For purely *energetic* reasons, nuclear fusion starting from hydrogen throughout the whole universe / USS only results in atoms built up in accordance with the elements

of the periodic table. **Document F1d.** The physical and chemical forces of these atoms USS wide the same.

Within the *4 – 20 million identical facet / cluster areas* of the USS, now each still containing about two thousand galaxies, the same number of 9 – 11 speeds relative **center C** are present now. Inside all clusters the physically and chemically forces of the present atoms universe /USS wide build up from the very same number of 9 – 11 speed or kinetic energy related components. Each component related to its own speed of the atom in the universe.

**-) All atom related forces build up from 9 – 11 different components:**

Now planet Earth is submitted to 9 – 11 different speeds in the universe. Gravitation and the two physical and two chemical forces / bonds of atoms / molecules are built up from the very same 9 - 11 speed / kinetic energy related components. This stretches throughout the whole universe USS. This also applies to the natural constants. **Document F1d + figures.**

## **4.2 PERIODIC SYSTEM OF BLACK HOLE ATOMS STARTING FROM BERYLLIUM :**

**-) Periodic system black hole atoms start at beryllium:**

Under extreme outside pressure the electron shells of ordinary atoms can collapse up to near the atomic nucleus. That case ordinary atoms transform into black hole atoms. This collapse of the electron shells is effected exclusively in case:

- a) extremely high pressure at the outside of the present atoms / molecules, and
- b) through the forming of Van der Waals/ London bonds between electron pairs within the electron-shells and between electron pairs in different electron-shells of the same atom.

For forming such internal Van der Waals / London bonds inside atoms and the collapse of the electron shells of ordinary atoms towards near the atom-core, at least two electron pairs are required. The transition from ordinary atoms into black hole atoms only occurs starting with the atom beryllium and higher. In the authors vision black hole atoms are spatially seen shriveled copies of ordinary atoms! **Document F1e + Figures.** Black hole atoms and blackholes aren't singularities!

The smallest atoms / *elements H, He and Li* miss those two minimal required electron pairs. Therefore the elements H, He and Li cannot collapse and transform into black hole atoms! Therefore those three lightest elements cannot disappear into a black hole as well! The periodic table of black hole atoms starts from the first black hole element beryllium.

**-) Black hole atoms / black holes are super cold:**

In black hole atoms, the atom core is completely wedged between this electron shells within which these electrons rotate against the speed of light around their atom core. In the black hole atoms the atomic nucleus hasn't virtually any space left to vibrate and thus to demonstrate the physical phenomenon of temperature. Therefore all black hole atoms are super cold with a temperature near 2.7 Kelvin. This also applies to all other forms of black holes / collapsed celestial bodies. For that reason, these super cold black holes cannot emit light by themselves!

These 'shell'-electrons of blackhole atoms move near the speed of light around the atom-core. So these atoms cannot absorb energy / photons either. In fact blackhole atoms / blackholes are perfect mirrors and both extremely unstable!

**-) Black holes can not collapse to singularity:**

Black hole atoms inside black holes are based on an atom nucleus surrounded by electron shells. These electron-shells repulse each other net mutual. Physically seen black hole atoms / black holes cannot collapse further towards a singularity!

Physically seen a singularity isn't possible!

*Such a singularity is only possible mathematically!*

**-) Black holes are unstable and remain stable as long they generate sufficient gravity:**

Black hole atoms repulse each other mutually like atoms / molecules in a gas. Black holes are extremely unstable! They only remain stable as long as blackholes generate more gravity than the electric repulsion between black hole atoms mutually. Only gravity is capable trapping these black hole atoms inside a black hole / compressed celestial body.

The minimum required amount of gravitation is defined as the *Critical black hole gravity* or *Cribhgra*. Cribhgra equals a blackhole with a diameter of about 5 km rotating at the speed of light. In fact Cribhgra is correlated with a minimum required level of kinetic energy of compressed celestial bodies!

In case gravitation falls below Cribhgra the black hole first disintegrates into unstable black hole atoms. Normally these black hole atoms explosively disintegrate directly into an equivalent number of ordinary protons and electrons. **Figures 17 - 27 document G8 English [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu)**

**\*5) CONNECTION GRAVITATION (RT) ↔ PHYSICAL AND CHEMICAL FORCES / BINDINGS (QM):**

**5.1 PHYSICAL ORIGIN OF GRAVITATION:**

**-) Clear mass and gravitation:**

The mass of the atom is mainly present in the protons present in the a core nucleus. (for the author: 1 neutron = 1 proton + 1 electron). The mass of the atomic nucleus is roughly proportional to the number of protons. The *physical origin* of gravitation, however, does not consist of the direct link to the mass of the atomic nucleus.

Like other physical and chemical forces of atoms (**Document F1d**) gravitation is generated exclusively by the 'shell'-electrons of atoms caused by the velocity of the atom in the universe. **Documents E3, E3-1 and E3-2 [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu)** .

In the universe a direct link missing between gravity and mass. Exclusively an *indirect* link exists between mass and gravity. Gravitation is generated by the 'shell'-electrons of this atom due to speed of the atom in the universe / USS. The higher the speed the linear higher the generated gravitation per 'shell'-electron. The more 'shell'- electrons the higher the generated gravitation by the atom!

Science doesn't recognize this physical origin of gravitation. What is the effect of speed in the universe on the atom?



## 5.2 EFFECT ON THE ATOMIC SPEED IN THE UNIVERSE; GRAVITATION AS BASE THEORY OF RELATIVITY (RT):

### -) In atoms speed generates deviations in the orbits of all 'shell' electrons:

In case an atom is absolutely without any speed in the universe all 'shell' electrons pass through perfectly round orbits around their atomic nucleus. That case these orbits are just one electron thick. The 'shell'-electron is without any form of from outside the atom 'added' kinetic energy. **Figure 1a document E3-1.**

Every form of speed / velocity of the atom in the universe and associated kinetic energy is 100% added to that perfect orbit as well. Every kind of (rotational) speed results in:

a) its own specific speed related deviation in that ideal orbit and

b) results in its own distinctive form of 'speed related 'added' kinetic energy.

This applies to all 'shell'-electrons of atoms present in an object or celestial body. This also applies to all 'shell'-electrons of black hole atoms.

All existing 'shell'-electrons of these normal atoms and blackhole atoms however want to return to an ideal perfectly round orbit around the atom-nucleus of one electron thin without a) any form of deviation(s) and therefore b) without any form by speed 'added' kinetic energy. **Figure 1a document E3-1** [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu).

These 'shell'-electrons reach that ideal orbit without any deviations and 'added' kinetic energy exclusively in case the speeds(s) of the atom in the universe is reduced towards zero. In the whole universe now that is nowhere the case.

### -) Inside all atoms in universe about 7 internal rotational speeds present:

The *internal speeds*  $v_{r1}$ ,  $v_{r2}$ ,  $v_{r3}$  are linked to both Higgs particles of the proton and both Higgs of the electron with just 3 angular velocities possible at this most elementary level. **Document F1a 2014.**

The *internal speeds*  $v_{r4}$ ,  $v_{r5}$  are linked at the transition of the proton and electron from mass to matter by adding  $E = mc^2$  energy / rotational speed. **Document F1c.**

The *internal speeds*  $v_{r6}$  and  $v_{r7}$  are linked to 'shell'-electrons of atoms. **Document F1d.**

### -) In all 4 – 20 million facet areas USS all atoms now undergo the same 9 - 11 different external speeds relative center C:

On earth, and elsewhere in the universe now all atoms are subjected to as many 9 - 11 different additional external movements / velocities. One expansion-speed of the universe / USS  $v_{r10}$  together with 8 – 10 rotational speeds  $v_{r11}$  -  $v_{r21}$  all situated inside this locally flat USS as movements of celestial bodies, inside solar systems, galaxies and clusters of galaxies. These 8 – 10 rotational speeds are related to 8 – 10 rotation movements with ever increasing radius

In all facet / clusters there are the same 9 – 11 speeds relative **center C** qualitative as well quantitative! Those external speeds of atoms amount tens to hundreds of km/s and sometimes even about a thousand km/s.

During measurements these 9 – 11 abnormalities induced by the 9 – 11 different *external* velocities in the universe appear more and more evident as the measuring

apparatus is more and more accurate. (Those 9 - 11 *external* velocities in the universe might be even identical to the number of dimensions in string theory!)

Those current 9 - 11 *external* speeds of atoms change extremely slowly during the cycle of the universe both in number of velocities as well quantitatively in time. The developments in these 9 – 11 speeds both qualitatively and quantitatively are only to be determined after mathematical modeling the universe / USS and its cycle.

### **5.2.1: GRAVITATION AS REACTION ON DEFORMATION IN THE ORBITS OF 'SHELL'-ELECTRONS :**

The current same 9 - 11 *external* speeds of all atoms in all 4 – 20 million clusters of the USS generate correspondingly everywhere in the USS exactly the same 9 - 11 different deviations and in the orbits of all 'shell' electrons of atoms around their atomic nucleus! Together these 9 - 11 deviations result USS wide in one vague path of all 'shell' electrons around their atomic nucleus. **Figures 1b and 1c**

#### **Document E3-1.**

In case all 9 - 11 external speeds within our cluster area are known both qualitatively and quantitatively this is true for the whole USS. That case all the orbits of the 'shell'-electrons and their positions are to be followed mathematically precise and universe / USS wide.

**-) Gravity is the reaction / protest of the 'shell'-electrons to deviations; gravitation consists of 9 - 11 different speed components:**

As a protest against these 9 - 11 speeds and as a reaction to the 9 – 11 *deviations* caused by speed all 'shell'-electrons of atoms generate 9 – 11 speed related components of gravitation. The atom core does not undergo a specific speed-related deviation. The atom core and there present mass doesn't generate any gravity by itself!

Every speed of the atom in the universe is specifically linked to its own gravitational component. Thus gravitation is subdivided into 9 - 11 separate, strictly separated, gravitation components. This separation into 9 – 11 speed components is at the basis of quantum gravity. For this purpose, these 9 - 11 speeds of planet Earth in the USS must be derived qualitatively as well quantitatively.

*Only similar gravitational components attract each other mutually!* Different gravity components are completely indifferent to each other. Loose protons, electrons and neutrons have mass and matter, but both do not generate gravitation as long as there are individual loose particles not combined in atoms!

The amount of gravitation generated is :

- a) *linearly related to the number of 'shell' electrons of the atom,*
- b) *linearly related to the speed of the atom in the universe ,*
- c) *linearly subdivided to the different speeds of the atom in the universe.*

Gravitation is only *indirectly* related to the mass of the atom !

**-) Gravitation 'radiation' moves at speeds far greater than the speed of light:**

Gravitation is a very specific form of 'radiation'! Gravity is continuously generated by the 'shell'-electrons entirely free of charge, as a result of the speed of the atom in the

space / USS! Gravitation is the only form of 'radiation' in the universe without particles and without energy!

Consequences:

- 1) Therefore 'radiation' of gravitation is not limited to the speed of light as it applies to all other forms of electromagnetic and particle radiation!
- 2) Gravitation moves at speeds  $\gg$  speed of light  $c$  and probably even with infinite speed through the universe.
- 3) Unlike all other forms of electromagnetic radiation and particle radiation this gravitation isn't bound to the hydrogen / helium present inside the USS.
- 4) Gravity is the only radiation capable crossing the absolute vacuum inside as well outside the USS. So all gravitation leaves the universe the very same moment it is generated!
- 5) For gravitation distances in universe are directly and thus (much) shorter compared distances measured by photons through the curved USS! Therefore a correction by a factor  $\cos a$  is necessary.
- 6) Gravity is the only force active at the scale of the universe.

**-) Purpose gravitation:**

Gravitation is the result of speeds (= information) of the atom in the universe! The goal of gravitation is:

- a) to hold all matter and kinetic energy captured together in the universe within the USS and
- b) to slow down the expansion speed and all other kinds of velocities of all normal and blackhole atoms in the universe.

That case all 'shell'-electrons achieve a more ideal orbit around the atom-core.

In the universe, braking speeds can only be realized by converting speed / kinetic energy of the atom / celestial body into heat / photons. This is realized through the mutual attraction by gravity and by collisions between celestial bodies.

After these demolishing collisions the existing movements decreased and kinetic energy is converted into heat / photons. After these collisions the speed of all involved atoms has decreased and thus the deviations in the orbits of all present 'shell'-electrons of both celestial bodies. After the collision the amount of generated gravitation and the amount of gravitational energy correspondingly decreased as well!

**-) In Einstein's gravitational formula factor  $\cos a$  lacks:**

The universe is initiated from a single point **center C** of the universe / USS.

Therefore the universe now must have the form of a thin spherical shell with a radius of presently around 3 to 3.5 billion lightyears; possibly more. Now this rather perfectly round universe spherical shell (USS) is subdivided into approximately 4 - 20 million equal *cluster / facet areas*, each still comprising approximately two thousand galaxies.

In that perfectly universe-spherical-shell (USS), both time and space are physically perfectly curved. Everywhere in the USS is exactly the same **universe clock time (UCT)** even inside blackholes! (Any local distortion in this universe clock time would block an endless ongoing cycle of the universe!)

Both inside and outside USS there is an absolute vacuum where only gravitational 'radiation' can move; there both space and time are absence. All forms of electromagnetic radiation such as neutrino's, neutrons, photons of light and infrared

radiation and particle radiation cannot pass or move through that absolute vacuum space both sides the present USS. All neutrinos, photons and particle radiation are forced moving through the extremely low concentrations of hydrogen gas and helium gas present within the universe-spherical-shell (USS) and there present galaxies! Consequence: we only observe galaxies and history of the universe through that by nature perfectly curved USS!

Because of that natural curvature of space and time all galaxies, present in this USS, in fact are much closer to each other in reality, then we *observe* these galaxies through the curved and still expanding USS consisting of hydrogen, helium and galaxies. The actual distance in the universe is (much) shorter than the distance observed and measured via the USS!

For that reason, **Einstein's** gravitation formula must be added a *factor cos a* correcting the real distances in our balloon shaped universe! **Figure 36 document G8** [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) .

**-) Universe contains much more gravitation, mass, matter and kinetic energy:**

With that *factor cos a* added to the gravitational formulas by **Newton** and **Einstein**, about 5 to 7 times as much gravitation is present in the universe / USS. In the USS about 5 - 7 times more mass, matter, atoms and kinetic energy is present than thought until 2019 and has been measured / observed!

**-) Cos a added to gravitational formulas solves the problem of 'dark ' mass / matter:**

With *cosines a* now added to gravitational formulas by **Newton** and **Einstein** the problem of 'dark' mass and matter is solved completely. With *cos a* the problem of 'dark' energy is solved to an high degree as well.

**-) Gravitational energy; rest missing 'dark' energy is gravitational energy:**

In this balloon shaped universe / USS gravity is coupled to gravitational energy. In case the balloon shape of the USS is neglected in energy balances of the universe this gravitational energy is neglected as well. The remaining missing 'dark' energy in this balances is gravitational energy consisting of:

- a) gravitational energy of the USS relative to the **center C** of the universe and
- b) the 8 – 10 different forms of gravitational energy within the USS.

Because of the spherical-shell of the universe now all matter / atoms undergo 9 - 11 different speeds. Correspondingly there are about 9 - 11 different types of gravitation and forms of gravitational energy!

Both forms of gravitational energy have not or hardly been incorporated / processed in the energy balance of the universe. This results in gigantic shortages of (gravitational) energy currently present within the USS. The so-called 'dark energy' is nothing more than these 9 - 11 forms of now in Science neglected gravitational energy present in the universe / USS!

Starting from a spherical shell universe (USS), these energy shortages can be fully explained. After mathematical modeling of the universe cycle, these deficits can also be quantified in detail. Like gravitation, the associated gravitational energy is also subdivided into 9 - 11 different components. **Document E4.**

**-) Differences between *gravitation* and *shock waves of gravitational energy*:**

After collisions between celestial objects, the *gravitational* effect moves directly and at infinite speed through that vacuum on both sides of the USS.

The associated shockwaves of *gravitational energy* however only to move through the helium - and hydrogen gas / atoms / molecules which are only present within the USS at extremely low concentrations.

Unlike the infinite speed of gravitation 'radiation' these shockwaves of gravitational energy are strictly limited by the speed of light!! In fact, **LIGO** and similar scientific instruments like **Virgo** only detect these shockwaves of gravitational energy! **LIGO** doesn't observe or measure gravitational waves!

Gravitation and the construction of gravitational energy in the current 9 - 11 underlying components is elaborated in **documents English E 3, E3-1, E3-2 and E4** [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) .

**-) Universe / USS as 100% closed system for mass, matter and kinetic energy:**

That imperceptible curvature of the USS and forced movements of all radiation within the USS also ensures a completely closed universe for all kinds of radiation containing mass, matter and kinetic energy. This enables the never ending cycle of the universe.

**-) Gravity creates a balloon shaped universe with a maximum radius:**

Gravitation ensures that the universe / universe-spherical-shell (USS) cannot expand infinitely. In about 350 - 450 billion years from now gravitation brings the current expansion speed of the USS to a complete stop. (That expansion started about 40 – 45 billion years ago with 1/3 – 1/2 the speed of light  $c$ ; now this expansion speed is already reduced towards about 450 km/s)

Now we arrived in **Phase 23** cycle of the universe. The whole USS consists of estimated 4 – 20 million equal clusters / facet areas each around a central cluster blackhole in the middle. In the past that central super massive cluster blackhole (**CSMCBH**) absorbed already about 1 – 2 thousand galaxies. Now in each cluster / facet area still remaining about two thousand galaxies!

At the end of phase 23 in every cluster all, now present, about two thousand galaxies will be completely absorbed by that central facet / cluster black hole like **M87** now present in our own *Virgo cluster*.

In about 350 – 450 billion years all expansion speed / energy will be transformed into rotation speed / energy of this last remaining central super massive cluster black hole (**CSMCBH**) . The range / radius of the perfectly round USS will be about 3.5 billion light-years may be some more.

That moment (= **phase 24 of 29**) all mass, matter, kinetic energy neutrino's and photons as well will be captured in on of the 4 – 20 million equal *central facet / cluster blackholes* each containing the mass, matter, kinetic energy of about 4 may be 5 thousand galaxies.

**-) Start shrinking universe:**

That moment under the influence of gravity the universe / the universe-spherical-shell of 4 – 20 million **CSMCBH**'s starts shrinking back strictly regulated towards the **center C** of the universe. **Phases 25, 26 and 27 G7 English and connected figures G8.**

**-) Endless energy-neutral cycle of the universe:**

The universe follows endlessly almost exactly the same energy neutral cycle of 29 steps as described in the **documents G6 English (start universe with super cold Little Bang at 0 K), G7 (universe cycle, 255 p) and G8 (115 figures) or Appendix 1.**

**5.3 ORIGIN PHYSICAL AND CHEMICAL FORCES / BINDINGS AS A BASE QUANTUM MECHANICS (QM):**

Speeds of atoms in the universe results on the atom the same moment for an increase in the amount of 'additional' kinetic energy ( $1/2 mv^2$ ). This applies to both the nucleus as well for all 'shell'-electrons of the atom! The orbits of these 'shell'-electrons can be optimized by converting this disturbing 'added' kinetic energy as much as possible into physical or chemical bonding heat / photons.

To minimize this amount of 'added' kinetic energy these 'shell'-electrons generate two physical forces and two chemical forces which are only active at the scale of the atom. **Document F1d.**

With these 4 forces this 'shell'-electrons can form physically and chemically bonds which standard results in the release of binding heat / photons. Via such bonds and resulting release of binding energy only a part of that by speed 'added' kinetic energy can be converted into heat / photons.

**-) Physically and chemically forces / bonds related to kinetic energy:**

These two physical and chemical forces are proportional related with kinetic energy and thus therefore quantitatively with  $v^2$ . These forces are much stronger than gravity! The effect of such bonds however is limited. Only the 'shell'-electrons involved in these physical and chemical bonds end up in an energetically more favorable orbits around their atomic nuclei. For the other 'shell'-electrons that isn't the case!

Just like gravitation that *'added'-kinetic energy* is constructed out of 9 - 11 specific separated *external* components of 'additional' kinetic energy:  $[1/2 m (v_{r10})^2 \dots$

$1/2 m (v_{r21})^2 ]!$

(Speeds ( $v_{r1}, v_{r2}, v_{r3}$ ) are linked to the angular velocities of Higgs particles ( $v_{r4}, v_{r5}$ ) to the transition from mass to matter and ( $v_{r6}$  and  $v_{r7}$ ) to the 'shell' electrons of atoms)

**-) Physically and chemically bindings / bonds are built up and broken down in single 9 – 11 single steps:**

Only similar force components result in a physical or a chemical bond. All the physical and chemical bonds consist of 9 - 11 underlying physical or chemical forces components and thus 9 – 11 binding-components. The physical and chemical forces / bonds and their structure in the current 9 - 11 underlying components is derived in **document F1d English** [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) .

Each individual physical or chemical binding / bond of 9 - 11 underlying components is build up or broken down in 9 – 11 single steps! In **Document F1f this min / max 1 principle** is explained. This incrementally build up or break down of physically and chemically bonds is the essence of *quantum mechanics* and finds its origin in movements of atoms in the universe as well.

As soon all 9 – 11 speeds are known all *molecular bindings* can be spit up in their 9 – 11 energetic components! Quantum-mechanics has a direct link to the universe and the cycle of this universe!

**\*6) INTERMEDIATE CONCLUSIONS:**

1) Elementary mass, electric charge and magnetic spin are the result of kinetic energy that causes three rotations of two elementary super-symmetrical proton Higgs and two elementary super-symmetrical electron Higgs particles around their three axis of rotation clockwise or anti-clockwise.

At these four distinguished elementary Higgs particles these three rotations causes three distortions. Higgs particles combating these 'internal' kinetic energy / rotations /distortions by generating three physically phenomena: 1) mass or anti-mass, 2) positive or negative electric charge, 3) parallel or antiparallel magnetic spin  $\downarrow \uparrow$ .

Thus a) kinetic energy, b) mass, c) charge and d) spin are firmly linked to each other. These four Higgs particles have a three dimensional space / volume and a four - dimensional physically structure!

(Space and time / universe clock time are primarily related to the cycle of the universe. See **Document G2** space and time)

2) The clockwise and anticlockwise rotations of Higgs result in a Higgs particle and its anti- Higgs particle of the proton or thos of the electron. Both proton Higgs have a perfectly mirror-image and super-symmetrical of spatial structure as well physically properties. This also applies to the Higgs particle and anti Higgs particle of the electron.

3) Those maximum three deformations of Higgs particles only result in mass / anti-mass, electric charge and magnetic spin. At the very lowest Higgs level of the proton and that of the electron Higgs anyhow no rotation space is available to generate gravitation!

4) Gravity is just generated by the 'shell'-electrons of atoms and caused by speed of the atom in the universe / within the USS. Gravitation is generated free of charge!

5) Gravitation is not directly but *exclusively indirectly* linked to mass! Gravitation is indirectly generated and linked to mass by the 'shell'-electrons of the atom, as a consequence of velocity of the atom in the universe. So gravitation is a derived force instead of an elementary force Science thinks anno 2019!

6) Higgs and its anti Higgs particle with their mass / anti- mass cannot annihilate with each other. Consequence: **Einstein's**  $E = mc^2$  does not apply at Higgs level! Mass isn't convertible in energy vice versa!

7) With Higgs particles, neutrinos, photons and quarks can be built up. The maximum size goes up to the level of the proton and the electrons. Proto-protons and proto-electrons are made up of their neutrinos and photons and finally constructed out of three quarks.

8) The property of matter / antimatter only arises when these constructions of the proto-proton and the proto-electron rotate around their longitudinal axis at about the speed of light and thus  $E = \frac{1}{2} mc^2$  kinetic energy is added to these proto-protons / proto-electrons as rotational energy.

9) **Einstein's** formula  $E = mc^2$  only quantitatively applies to annihilation of equivalent matter / antimatter. In case of annihilation of equivalent matter / antimatter this fall apart into neutrinos and photons. With these particles  $E = mc^2$  rotational energy is freed and emitted. Surprisingly during annihilation none of the present mass is converted into energy!

10) Gravity and other non-elemental physical and chemical forces are generated at the level of 'shell' electrons of atoms. Gravitation (RT) and the 2 physical and 2 chemical forces / bonds of atoms (QM) have the same origin:

a) the 'shell'-electrons of atoms and

b) the currently 9 - 11 different speeds of atoms in the universe being one expansion speed of the USS and 8 – 10 rotation speeds within the USS.

11) Gravity tries to counteract the deviations in the orbits of the 'shell'-electrons as much as possible by means of collisions between celestial bodies in which heat (infrared photons) is released at the expense of speed, gravitation and gravitational energy.

12) Parallel by forming physically and chemically forces and bonds these 'shell' electrons of atoms try to get rid of these by speed 'added' kinetic energy by converting this attached kinetic energy as much as possible into released binding heat / photons of infrared and light.

13) The theory of relativity (RT, gravitation), and quantum mechanics (QM) are fixed coupled to one another through this common basis of velocity / speeds of atoms in the universe, and these by speed 'added' 9 – 11 kind of kinetic energy of these 'shell'-electrons!

14) Quantum gravitation and quantum mechanics are intimately connected with each other and with astrophysics and the cycle of the universe. Together they form the sides of the same coin.

15) Through mathematical modeling of the universe cycle, for each moment during that cycle both the number of velocities can be derived as well these velocities filled in quantitatively.

#### **\*7) QUANTITATIVE COMPLETION OF GRAVITATION AND PHYSICAL AND CHEMICAL FORCES AND BINDINGS:**

According to the author gravitation (RT), and the physical and chemical forces / bonds (QM) currently universe wide are constructed from the same 9 - 11 speed / kinetic energy components. Every component is associated with only one of the current 9 - 11 velocities / speeds of the atoms in the universe!



In case these 9 - 11 velocities are known and quantitatively filled in, gravitation can also be analyzed in its 9 - 11 *linear velocity related* gravitational components (= quantum gravitation). The gravitational constant can be divided into 9 – 11 underlying components as well.

Through that same 9 - 11 speeds the allocation of ‘added’ kinetic energy ( $1/2 mv^2$ ) is possible as well. These 9 – 11 components of physical and chemical forces and their bonds are *quadratically* related to those 9 – 11 different speeds. All physical and chemical forces, and their bonds are subjected to the same quantitative distribution. All the physical and chemical bonds between elements of the periodic table are quantum mechanically to split off and to be filled in completely. The universe and cycle of the universe as link between theory of relativity (RT) and quantum-mechanics (QM). Cycle of the universe **Appendix 1**.

## 7.1 QUANTITATIVE BREAKDOWN SPEEDS ATOMS IN THE UNIVERSE:

### -) **Current speeds of planet Earth:**

The universe / current universe-sphere-shell / USS consists of approximately 4 - 20 million of equal facet areas / cluster areas now each filled with approximately two thousand galaxies and same amount of mass, matter and kinetic energy. Within all 4 – 20 million cluster of the universe / USS now the same (9 – 11) speeds are present qualitative as well quantitative!

The Milky Way Galaxy belongs to the *Virgo Cluster*; one of about 4 - 20 million identical facet / cluster areas within the universe-spherical-shell / USS

Within that locally rather flat *Virgo cluster*, the Milky Way Galaxy itself is subject to 4 - 6 different (rotational) speeds of tens to many hundreds km/s. Special is the current expansion velocity of the universe spherical shell, which is currently still about 400 - 450 km/s.

Within the Milky Way galaxy 4 - 6 different speeds are present by the spiral arms and within these spiral arms. This includes areas around the central black hole and within groups of solar systems and movements of the celestial bodies present there.

Inside the USS Planet Earth is now subjected to 8 - 10 different rotation movements / speeds relative **center C** and within the USS all > 30 km/s and all located within the locally flat USS.

All atoms in the universe are subjected to the same 9 – 11 speeds in universe / USS.

Through measurements and astrophysical research those 9 - 11 speeds already are to define and approximate to fill in quantitative! That does not apply to all speeds. All 9 - 11 speeds pressing each their own specific marks on the orbits of all present 'shell'-electrons of all the atoms present in the universe, and on all the atoms in your body!

### -) **Future developments and number of speeds:**

The next 350 – 450 billion years due to gravitation the expansion rate of the USS is increasingly slowed down towards finally zero. This expansion velocity / kinetic energy is almost completely converted to rotational speed of galaxies and partly into gravitational energy relative **center C**. **Phase 23** cycle of the universe.

In approximately 350 - 450 billion years in all galaxies of these cluster / facet-areas all existing stars and new stars are completely burned / fused to beryllium and higher; elements acceptable for blackholes. All stars and their planets have disappeared into the central blackholes of local galaxies.

The Milky Way galaxy is part of the *Virgo cluster*. The center of this Virgo cluster is galaxy M87 well known as first photo of its central blackhole. M87 is a galaxy without spiral arms as result of already fusing 1 – 2 thousand galaxies in the past billions of years. Every cluster has such a Central super massive cluster black hole (CSMCBH) in his center.

At the end of the expansion in all of 4 - 20 million equal facet / cluster regions by gravitation and collisions all still present about two thousand galaxies are merged into one single central cluster / facet black hole like M87. All cluster blackholes (CSMCBH) rotating with  $1/3^{\text{th}}$  -  $1/2^{\text{th}}$  the speed of light  $c$  around their axis all precisely pointed at **center C** of the universe / USS.

In the Virgo cluster this central facet / cluster black hole is already present under construction at the location of M87. In the next 350 – 450 billion years by collisions all current 9 - 11 -speeds and connected kinetic energy are likewise disappeared and merged into one single rotation speed of that central facet / cluster black hole *M87*.

#### -) End expansion universe / USS:

In all the clusters / facet areas of the universe / USS the same moment the current expansion velocity is completely transformed into rotation speed and thus reduced to zero. All the expansion velocity is converted and concentrated in the only remaining rotational speed ( $1/3c$  -  $1/2c$ ) of their central facet / cluster black hole. This applies exactly the same way to all other 4 – 20 million facet areas / clusters each containing 4 – 5 thousand galaxies.

#### -) Start contraction USS:

The same moment under the influence of gravitation, the universe / universe-sphere shell of 4 – 20 million central facet / cluster black holes (CSMCBH) then shrinks all-around again. Gravitation coordinates this return to **center C**.

That contraction of the USS however is contraire to the rotation of these central facet / cluster blackholes which was the result of the expansion. So shrinking of the USS is contraire and goes at the expense of the rotational speed of these facet / cluster black holes. On the way back to **center C** the acceleration in the contraction speed of this central facet of black holes is continuously braked at the expense of their rotational speed. Overall this results in a more or less constant shrinking speed of the USS towards about 100 – 150 km/s.

At the end of the contraction of the USS, some 2 – 3 trillion ( $10^{12}$ ) years later, all central facets black holes (CSMCBH) are completely stripped and freed of their rotational speed and associated rotation gravitation and gravitational energy. So no Big Crunch but in the end a super soft Crunch! **Phases 25 – 28 G7** and **Figures 1 – 30 G8**.

The coordination by gravity ensures all central facet / cluster black holes returning and meet exactly the same moment at **center C** of the universe without any kind of rotation. There they melt super softly together into one Little Bang black hole with a diameter of about 50 – 100 million km.

During the final stage that Little Bang black hole loses more and more of its contraction speed, and hence more and more of its last remaining form of downsizing gravitation and gravitational energy. Because the mutual repulsion between blackhole atoms the instability of the Little Bang blackhole increases more and more direction *Critical blackhole gravity* or *Cribhgra!*.

**-) Start next universe:**

Just before the very end of contraction this Little Bang blackhole reaches its *Critical Blackhole Gravity* (*Cribhgra*). That very same moment this Little Bang blackhole becomes unstable. All blackhole atoms disintegrates at 0 Kelvin into loose protons and electrons.

These freed protons and electrons arrange themselves into mono-layers protons / electrons expanding  $1/3^{\text{th}} - 1/2^{\text{th}}$  the speed of light. **Document G6 + figures 1 – 30 G8 English [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) .**

**7.2 UNIVERSE AND ITS CYCLE PRIMARY TO DESCRIBE AS PHYSICAL, CHEMICAL AND NUCLEAR CHANGES; SECONDARY MATHEMATICAL:**

**-) Modeling universe starting from mathematics is deadlocked:**

Anno 2019 Scientists describe the universe and processes *primarily* from a *mathematical approaches and in terms of mathematical formulations*. The physics, chemistry and nuclear physics are just secondary level! Is that correct?

In case you start the description of the universe and its cycle purely mathematically this results in a dead end. That's because you cannot follow properly the physically, chemically, nuclear and energetic processes that occur during the 29 steps of the cycle of the universe. A primary pure mathematics based universe and cycle cannot follow, adjust and correct itself physically, chemically or nuclear! Pure mathematical models are doomed to stuck in the cycle of the universe with its predictable physical, chemical and nuclear changes.

This changes as soon as these physical, chemical and nuclear changes and processes in the universe are taken as starting point and guideline in the modelling. This cycle is shortly described in **Appendix 1**. This results in smooth-running and unwound cycle of the universe in now 29 steps. All steps are predictable and following one another completely logical. All steps are described qualitatively in **G7 and G8**.

**-) Every step can be mathematically modeled:**

*Every step is characterized and based on more or less one physical, chemical or nuclear change*. Every step in this universe cycle the author derived can be mathematically formulated. Each of these 29 steps gets its own mathematical model that connects seamlessly with both the previous step as well with the next step of the cycle. The universe cycle overall consists of 29 consecutive seamlessly connected models in which *step 29 is completely identical to step 1!* The universe is an endless ongoing energy-neutral perpetuum mobile. Through this mathematical model the universe and its cycle are to qualify and quantify completely from the first second until the very last second of the cycle. No 'dark' period of 380,000 years and bright future of this universe.

This mathematically modelled cycle can be quantified in future in detail more and more. **Documents English G6 (Little Bang), G7 (255 p text) and G8 (115 figures).**

**-) Mathematical model universe results in the minimum required mass, matter, kinetic energy, space and time for the unwinding such an endless cycle:**

Such mathematical model also results the minimum / maximum quantity of required:

- a) mass , electric charge and magnetic spin (number of Higgs particles),
- b) matter (number of protons, electrons and atoms),
- c) kinetic energy, gravity and gravitational energy relative **C** as well inside USS,
- d) space / expansion / radius of the universe / USS relative **center C** (lightyears),
- e) how much time (years) is needed unwinding one whole cycle of the universe.

The author expects a mathematical model of the universe resulting in a very narrow bandwidth. In time incorporating results of scientific research that mathematical model becomes increasingly better and quantitatively more and more detailed.

The preparation of this mathematical universe model requires your help and commitment. With 5 – 10 Scientists a first version of this mathematical model can be realized within 4 – 6 months.

**-) The current 9 - 11 speeds only can be determined qualitatively as well as quantitatively via mathematical modeling of the entire cycle of the universe:**

The total package of the current 9 - 11 velocities of atoms in the universe / USS can be measured but can only be traced exactly by mathematical modeling of the universe and of the 29 steps in the energy-neutral cycle. The universe and its cycle is primarily based at physical, chemical and nuclear changes; mathematics just secondary! That might kick some scientists to the shins!

**-) The boundaries of the universe and cycle of the universe:**

The universe follows endless the same *energy-neutral cycle* in 29 physical, chemical and nuclear steps. The universe cycle derived by the author wraps itself within the 9 universe laws (**Document G4**) and 12 parameters of the universe (**Document G3**).

Every cycle of the universe is settled completely energy-neutral in exactly the same time span currently estimated at 2 - 3 trillion ( $10^{12}$ ) years; possibly more. Both time and maximum space / radius of the universe / USS are limited! In every cycle of the universe both maximum time and space are always exactly the same.

**Step 29 of the cycle** is exactly the same as **step 1**. This universe cycle repeats itself endlessly and energy-neutral. That cycle in detail is described in **Documents English G6 (start with cold Little Bang), G7 (text cycle universe) and G8 (115 figures).**  
[www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu) .

**-) Universe as perpetuum mobile:**

The universe and its cycle endless show almost exactly the same movie. **The universe and cycle form a perpetuum mobile; the only one possible!**

## **\*8) FINAL CONCLUSIONS:**

- 1) Kinetic energy and speed are the fundamentals underlying the phenomena:
  - a) mass, electric charge, magnetic spin of the four Higgs particles (**F1a 2014**),
  - b) matter proton / electron by adding  $E = mc^2$  kinetic rotation energy, (**F1b + F1c**),
  - c) universe wide hydrogen and the same elements of the periodic table, (**F1d + F1e**)
  - d) gravity by speed of atoms universe (Theory of relativity (RT) (**E3, E3-1, E3-2**) and
  - e) physical / chemical forces / bonds of atoms / molecules by 'speed 'added' kinetic energy (Quantum mechanics (QM) (**F1d**).
  
- 2) Quantum gravitation and quantum mechanics are linked together by speeds of atoms in the universe / USS and kinetic energy as result to the cycle of the universe.
  
- 3) The current link consists of the same 9 - 11 dimensional build-up of
  - a) gravitation and gravitational energy,
  - b) physical and chemical forces and bonds of the atom / molecules and
  - c) construction of their corresponding natural constants.
  
- 4) Those 9 - 11 dimensions are the result of the current 9 - 11 velocities of atoms in the universe. Except the expansion speed of the USS all other 8 – 10 speeds are located within the USS as circular and conical movements with an increasing radius.
  
- 5) Those current 9 - 11 dimensions / speeds can be derived qualitatively and quantitatively for each moment by a *mathematical model* of the universe cycle and 29 steps phases. We are now in the beginning of step 23 that takes another 350 – 450 billion years. One total cycle takes 2 – 3 trillion ( $10^{12}$ ) years to complete.
  
- 6) Such mathematically model is possible because every step / phase in the cycle of the universe overall is characterized by overall just one predictable physical, chemical of nuclear change.
  
- 7) Through this mathematical model of the universe and its cycle all possible (now 9 – 11) velocities can be determined both qualitatively and quantitatively from the first to the very last second.
  
- 8) This mathematically results in an indication and limitation how much a) matter (protons / electrons, atoms), b) kinetic energy c) space (= radius USS) and d) time (universe clock time of one cycle) are required to realize such a never ending cycle of the universe.

## **\*9) CLOSING:**

Up to now April 2019 no one in Science has made that direct link between the theory of relativity (mass, matter and quantum gravitation) and quantum mechanics transparent and clear. The author worked out an solution solving this problem.

The universe and its endless repeating cycle can only be described starting primarily from physical, chemical and nuclear-physical processes and changes. These processes take place step by step and characterized by overall just one change every step. Therefore this cycle of the universe can be mathematically described.

In case you start primarily from mathematics, those physical, chemical and nuclear-processes cannot be followed. You stuck.

The RT and QM link can be qualitatively derived through modelling the universe cycle and then quantitatively filled in. This universe cycle necessitates drastic changes in the starting points of the RT.

Nevertheless, I ask your complete support to mathematically modulate the universe and its cycle necessary further bridging and coupling quantum gravity and quantum mechanics and qualifying and quantifying this bridge between RT and QM.

I propose a working group to elaborate on this mathematical model of the universe cycle and thereby quantify the universe and thus link the RT and the QM in a quantitative way.

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## APPENDIX 1: HEADLINES CYCLE OF THE UNIVERSE (29 PHASES):

### **-a) End of the former universe losing all gravitation resulting a super cold Little Bang:**

This energy-neutral cycle repeats itself infinitive. The universe starts and ends each cycle with the so-called *super cold* (0 kelvin) Little Bang.

Around **center C** gravitation gathers 4 – 20 million *central super massive facet / cluster black holes* each containing the mass, matter and kinetic energy of about 4 – 5 thousand nowadays present galaxies to form just one *Little Bang black hole* with a radius of approximately 25 - 50 million km in which all the mass, matter and kinetic energy of the universe is locked up as black hole atoms.

Because of displacement in the end phase of these black hole atoms that Little Bang black hole loses more and more of its contraction speed, and thus more and more of its last remaining contraction gravity and gravitational energy. At the very last moment of contracting the *shrinking speed* goes back to almost absolutely zero. That moment practically all speed related gravitation has gone. That moment this Little Bang blackhole meets its *Critical black hole gravitation (Cribhgra)*. **Document G6 + Figures 1 - 19 G8 English.**

Only at the very last moment of contracting does the Little Bang black hole reach its *Cribhgra*. Exactly that very same moment this Little Bang black hole becomes unstable everywhere.

### **b) Little Bang black hole directly fall apart into protons and electrons:**

By mutual electric repulsion of black hole atoms, this black hole disintegrates into loose black hole atoms. These loose black hole atoms are unstable as well. In four steps this Little Bang black hole at 0 Kelvin fall apart into an equivalent number of protons and electrons.

Inside this former Little Bang black hole by the elementary forces electric charge and magnetic spin these loose protons and electrons arrange themselves into mono-layers of protons / electrons. The mono-layers of protons don't move yet; inside the mono-layers electrons moving with about the speed of light!

So all blackhole atoms fall directly adjoining apart into an equivalent number of protons and electrons. The universe didn't started with **Einstein's**  $E = mc^2$ !

### **c) Expansion monolayers protons / electrons without gravity and inflation:**

From the outside of this former Little Bang blackhole of monolayers is peeled. These monolayers expand with  $1/3^{\text{th}}$  -  $1/2^{\text{th}}$  the speed of light  $c$ . This first phase of expansion will occur without any inflation! That peeling of mono-layers protons / electrons takes about thousand – fifteen hundreds of years to complete!

Only some 1 – 1.5 millennium after the Little Bang the universe-spherical-shell / USS is arises. The next cycle of the universe / USS starts. That cycle lasts up to the second as long as all previous and all future cycles!

That first period atoms are absent. So gravity and gravitational energy are absent as well! **Document G6 + figures 19 - 30 G8 English.**

During a period of about 5 - 10 billion years without gravity and inflation this system of mono-layers protons / electrons expands completely unhindered. During this period of 5 – 10 billion years the distances between these mono-layers of protons and electrons increase. The same occurs within these mono-layers of protons and electrons.

**d) Forming hydrogen, gravity and gravitational energy (= ‘dark’ energy):**

After 5 – 10 billion years distances between the protons and electrons have increased in such a way one certain moment, universe wide the very same moment, all the protons catches one own 'shell'-electron. That moment universe wide exclusively the hydrogen atom will be formed and directly thereafter the hydrogen molecule.

With that hydrogen atom / molecule, gravity and gravitational energy return into the universe. The universe / the universe-spherical-‘shell’ (USS) on all sides reached an expansion relative **center C** of already about 3 billion light years. With respect to **center C** the universe is a rather thin perfectly spherical swollen balloon of pure hydrogen balloon some about 1 – 10 km thin.

In each cycle the moment and location formation of hydrogen is the same. With hydrogen gravitation and gravitational energy with respect to **center C** return in the universe. With hydrogen gravity returns and completely free of charge, an extremely huge amount of gravitational energy with respect to **center C** is added to each cycle of the universe! That amount of free of charge added gravitational energy is the 'dark' energy sought by Science! **Documents G7 + figures 31 - 36 G8 English.**

**e) Gravity inhibits the expansion.**

From now on the expansion related energy will be fully converted into rotational speed of the hydrogen and in rotation of all now present galaxies and present stars and planets. That process has already been going on for about 35 - 40 billion years. As a result all current galaxies rotate much faster than is possible at the basis of the Big Bang theory (13.8 billion years).

**f) Arise of trillions of large pure hydrogen spheres each becoming one galaxy arranged in 4 – 20 million equivalent cluster areas:**

Approximately 10 - 15 billion years after the formation of the hydrogen and after cooling down to its point of condensation the pure hydrogen gas in the USS becomes fluid; the gas pressure disappears. In the USS under the influence of gravitation the hydrogen gas collapse. Inside the USS about 4 – 20 million identical clusters arise each containing 4 – 5 super large and increasingly hotter becoming and quicker rotating 100% pure hydrogen spheres. These spheres are accompanied by 2 – 4 smaller hydrogen spheres or *Roemers*.

**g) Start of trillions of galaxies the very same moment:**

At the end in all 100% identical pure hydrogen spheres universe / USS wide the very same moment spontaneously nuclear fusion starts. This results simultaneously in trillions of *superhot* Big Bangs.

During these Big Bang just in the central sphere about 15 % of the hydrogen is fused. This results in losing gravitation in the central sphere. Because the fast rotation about 85 % of the hydrogen and these 2 – 4 *Roemers* are blown away as hydrogen gas inside the USS together with the outer regions of the fusion area with mainly lighter elements. Every *Roemer* becomes one spiral arm of the galaxy.

Every galaxy starts the same moment with its own Big Bang. The cycle of the universe cycle has already arrived in **phase 16 of 29. Document G7 English + figures 37 - 43 G8 English.**



#### **h) Forming central blackholes of galaxies and their 2 – 4 spiral arms:**

The central part of the fusion area immediately collapse into a fast rotating central black hole of the galaxy. This central blackhole of the galaxy exclusively accepts elements  $\geq$  beryllium which can be transformed into blackhole atoms. **Document F1e + figures.** The elements H, He and Li cannot collapse to blackhole atoms and aren't accepted. The basic function of stars is fusion of H, He and Li up to Be or higher. Overall during these Big Bangs the central blackhole of the galaxy are formed as well the 2 - 4 spiral arms of the galaxy out of the 2 – 4 *Roemers*. All trillions galaxies started simultaneously about 20 - 25 billion years ago each with their own same Big Bang! See **phase 16 G7 English + figures 42 -54 G8 English** explaining these Big Bangs and the origin of these *Roemers*.

#### **-i) Star formation out of Big Bang dust:**

During these Big Bangs, the largest part (about 85%) of the hydrogen present does not fuse. That hydrogen together with helium and lithium with the outer shell of the fusion area containing all the elements from helium to no. 92 and higher but above lighter elements  $\leq$  Fe. (The current universe and galaxies are constructed primarily out of *Big Bang dust and not out of star dust!*)

After cooling this hydrogen gas to fluid in every galaxy this results in the formation of trillions of stars completing this fusion process towards Be and higher.

#### **j) The present phase 23 some 40 – 45 billion years after the start of this universe:**

Virtually all present in the universe contained atoms, and substantially 100% of the atoms on the earth have been already formed during these trillion of hydrogen Big Bangs which took place about 20 to 25 billion years ago. A small part of the elements is only much later formed during explosions of stars in the final phase of their existence the moment all hydrogen, helium, and lithium is 'burnt' /fused into elements  $\geq$  Be . **Document G 7 + figures 42 - 54 G8 English.**

#### **In about 350 – 450 billion years all hydrogen, helium and lithium is fused towards Be and higher:**

Now we arrived in **Phase 23 of 29**. In 350 – 450 billion years at the end of of the expansion of the USS and end of **phase 23** all hydrogen, helium and lithium will be fused to beryl and higher. In the meantime all neutrino's and photons are transformed into new protons, electrons, new hydrogen and fused in stars into higher elements as well. In the meantime inside all 4 – 20 million clusters the nowadays remaining two thousand galaxies will have been disappeared in their own central super massive cluster blackhole (CSMCBH).

#### **-k) End expansion USS and start contraction USS:**

The expansion of the universe comes to an end. Gravitation starts the contraction of the USS ending in the next Little Bang blackhole and resulting a next Little Bang. The movie of the cycle of the universe starts all over again.

#### **Energy distribution universe during the universe cycle:**

In **Figures. 79 I - 79 XI**, the author in headlines presents the changes in the energy balance of the universe during the universe cycle. Through the mathematically model of the universe / USS, **figure 79** can be filled quantitatively from the very first second until very last second.

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