

BASIC STRUCTURE ENTANGLEMENT VIA GRAVITATION OF MATTER IN THE UNIVERSE:

***1) INTRODUCTION AND PROBLEM STATEMENT:**

1.1 SPEED PROCESSORS COMPUTERS LIMITED TO THE SPEED OF LIGHT c .

The processing of processes in ordinary computers is based on chips and on the transport of particles with mass or matter such as photons/electrons. At the lowest level, these particles are all made up of the most elementary, super symmetric (SUSY) Higgs particles, strings and strings of the proton or those of the electron.

Because of their 3 clockwise or counterclockwise rotations, these Higgs particles only generate the elementary characteristics of 1) mass, 2) electric charge and 3) magnetic spin. All Higgs particles, snares, strings are therefore naturally surrounded by micro-fields of: mass, electric charge and magnetic spin. **Document F1a 2014 & figures** www.uiterwijkwinkel.eu .

Via bonds with elementary charge and spin, larger stable particles can be formed from these elementary Higgs particles, such as neutrinos, photons, quarks up to maximal the (anti)proton and the electron/positron. **Documents F1b & F1c.** And further as atoms periodic table **Document F1d & figures.**

Because of these surrounding electric and magnetic micro-fields, all particles (neutrinos, photons, quarks, electrons, protons, neutrons) travel by wave movements. Those movements are limited by the speed of light c .

1.2 MOVING PARTICLES IS ONLY POSSIBLE VIA A CONDUCTIVE MEDIUM/ 'ETHER':

Because of their surrounding own electric and magnetic micro-fields these wave movements of neutrinos, quarks, neutrons, photons and electrons as electromagnetic (EM) and cosmic radiation requires an 'ether' / conduction medium of electric charge and magnetic spin.

That conduction is only possible through and along the electric and magnetic micro-fields emitted from atoms/ molecules such as H, H₂, He and from other atoms in a state of either a gas, a liquid or a solid.

These atoms/ molecules together form connected electric and magnetic micro-fields and thus an 'ether'/ conduction medium along which their own micro-fields of neutrinos, photons, protons, electrons and cosmic particles can move by wave movements.

This explains the dualistic particle/ wave character of EM radiation and cosmic radiation.

1.3 IN AN ABSOLUTE VACUUM SUCH A WAVE MOTION IS NOT POSSIBLE:

In the gigantic, absolutely 100% vacuum spaces of the universe, such 'ether' forming atoms/ molecules are completely absent and thus the electric and magnetic micro-fields necessary for conduction are absent. In those absolute vacuum spaces of the universe, conduction of photons, neutrinos, neutrons cosmic radiation isn't possible!

No form of electromagnetic (EM) radiation and/ or cosmic particle radiation can travel through those enormous absolute vacuum spaces of the universe!

All EM and all cosmic radiation therefore continue forced traveling 100% confined within the universe which in reality is a thin balloon of billions of galaxies and in between present extremely low concentrations of H, H₂ and He gasses. This makes the universe, seen macro, a 100% closed system for all EM radiation and for all cosmic particle radiation.

1.4 ALL EM AND COSMIC RADIATION LIMITED TO THE SPEED OF LIGHT c:

However, the movement of the particles of electromagnetic (EM) and cosmic radiation via those electric and magnetic micro-fields from atoms present in the 'ether' (including H, H₂ and He) is limited to a maximum of the speed of light c.

Current chips/ processors and wires are therefore currently subject to the following speed limitations/ preconditions:

- a) information transfer can only take place from atom to atom and via conduction along the electromagnetic micro-fields/ 'ether' emitted by them,
- b) speed of conduction is limited to a maximum of the speed of light c,
- c) can only take place in one way and
- d) do not occurs simultaneously via parallel paths/ lanes.

With the current generation of computer chips/ processors, such processing \gg the speed of light c and via parallel, simultaneously executed processing of information isn't yet possible.

1.5 GRAVITATION (AND TIME) ARE ONLY PHENOMENA NOT LIMITED TO THE SPEED OF LIGHT c:

Gravitation and time/ universe-clock-time/ UCT are the only physical phenomena that do not move via particles with associated electric and magnetic micro-fields. Therefore gravitation and time/ UCT do not move via wave motion. Gravitation and time are the exclusive phenomena which do not need an 'ether' to move.

Gravitation and time/ UCT are therefore not bound to the speed of light c. Both phenomena travel much faster $\gg c$ than the speed of light c. In principle even at an infinitely high speed! Problem: the theory of relativity does not provide speeds $\gg c$!

1.5.1 UNIVERSE CLOCK TIME/ UCT IS BASED ON ONLY ONE COMPONENT OF TIME:

Exactly the same, linearly progressing universe clock time/ UCT applies everywhere in the universe. The very same UCT applies inside and outside black holes. Differences in time/ UCT (fundamentally) aren't possible. Neither does time dilation. (Differences in measured time do occur in case identical atomic clocks are subjected to different speeds in the universe or at Earth. However, atomic clocks do not measure such elementary universe-clock time!)

In the universe, time/ UCT is based on only one time component throughout the universe. Parallel components of time aren't possible. Time is fundamentally different from gravity.

1.5.2 GRAVITATION IS BASED ON 9 TO 11 DIFFERENT COMPONENTS:

Gravitation is related to the 9 to 11 different forms of (particularly rotational) speeds to which atoms are subjected in the universe. Gravitation is physically generated from the 'shell'-electrons of atoms as a result of the atom's speed in space.

Documents E3, E3-1 and E3-2 www.uitewijkwinkel.eu (2007) describe the physical origin of those 9 to 11 parallel forms of rotation speeds of the atom in the universe (**E3 & E3-1**) and the associated 9 to 11 coupled component structure of gravity (**E3-2**).

Every speed in the universe generates its own corresponding gravitational component!

Gravitation from the 'shell' electrons of atoms is therefore made up of 9 to 11 parallel gravitational components. This makes such parallel, simultaneous handling and processing of information possible. Processing information at infinite speed is only possible via those 9 to 11 parallel gravitational components!

In the theory of relativity, **Einstein** (unfortunately) only gave a purely mathematical interpretation for the phenomenon of gravity and gravitation was limited to only the speed of light c . His mathematically based view on gravitation had no physical relationship whatsoever with the speed of atoms in the universe. Throughout his life, **Einstein** searched for such a physical explanation for the origin of gravity. Unfortunately, he did not find or publish that statement.

A century later, the theory of relativity and Science (2023) still lacks that physical explanation for the phenomenon of gravity as well for the component structure of gravity!

Current Science doesn't yet support author's physical explanation for gravity and its speed related component structure.

1.5.3 PHYSICAL FORM OF GRAVITATION RECENTLY DEMONSTRATED:

From a physical point of view, gravity is also something completely different from the shock waves of gravitational energy observed and measured by **LIGO/Virgo**!

This real physical form of gravity has recently been found/ demonstrated in pulsars. In pulsars vibrations have been observed and measured which are caused by gravitational fluctuations physically emanated from two rapidly rotating central black holes of two colliding galaxies.

These each other rotating central black holes emit gravitational vibrations which spread and travel with infinitely great speed $\gg c$ through the universe and cause vibrations in distant situated pulsars and thus in all other celestial bodies in the universe.

These vibrations observed in pulsars are proof of this elementary physical form of gravity!

***2) ONLY FOR GRAVITATION-BASED QUBITS, THOSE SPEED LIMITATIONS ARE VOID:**

Only with qubits, based on gravity, those two restrictions do disappear: a) the speed of light $c \rightarrow \gg c$ and b) a 9 to 11 simultaneous parallel processing of information \gg speed of light c is possible!

Questions to those involved, years ago, about how and in what way such an entanglement between atoms can be physically represented and how this entanglement can be technically realized did not yield substantively useful answers. The author then derived and developed his own physical explanation for both the origin and the component structure of gravity.

These have culminated in views regarding the basic structure of entanglement based on the various components of gravity as the basis of entanglement and for information storage and processing in qubits.

Document G17 discusses in more detail: a) the origin of gravity, b) the 9 to 11 dimensional structure/components of gravity & gravitational energy and c) application and structure of entanglement.

The physical origin and structure of gravity is further elaborated in Chapter 4. The possibilities of applying gravitational components in qubits are discussed in Chapters 5, 6 and 7.

***3) PURPOSE OF DOCUMENT:**

This document aims:

- a) Explain the physical origin of gravity and 9 to 11 parallel structure of gravity as well as the physical characteristics and component structure of gravity,
- b) To provide a physical interpretation of: 1) the structure of entanglement between two or more particles of matter in the form of qubits and 2) to provide insight into the physical structure of such entanglement,
- c) Which types of entanglement are physically and technically possible,
- d) Possible interpretation of the phenomenon of entanglement and its application.

***4) IN THE UNIVERSE ATOMS SUBJECT TO 9 TO 11 VELOCITIES THAT GENERATE FORCES ON ATOMS:**

In all galaxies, atoms can now be subject to 9 to 11 different forms of speed ranging from a few km/s to hundreds of km/s! Cosmologists have not yet mapped out all of these speeds. Hopefully that will happen through the **Euclid project**.

Each of those 9 to 11 speeds causes its own deviation of the 'shell' electrons/ electron pairs within the electron shells/ clouds around their atomic nucleus. These speeds keep all 'shell' electrons out of their desired ideal and perfectly round orbit around their atomic nucleus.

Figures 1a – 1c document E3-1.

These 'shell'-electrons resist those speed/ acceleration-induced deviations from their desired perfectly circular orbit by generating *two forms of gravity*.

- One form of gravity is linked to single 'shell' electrons.
- The other form of gravity is linked to the 'shell'-electron pairs of atoms.

Gravitation is physically generated by the 'shell'-electrons of both ordinary atoms and those of black hole atoms. In black hole atoms, only single 'shell'-electrons are possible and present. Electron-pairs are not possible inside such collapsed normal atoms starting Be. **Document F1e & figures**. These single 'shell' electrons of ordinary and black hole atoms generate the same speed components of gravity.

Only as long as these atoms are subject to (the same) velocities within the universe/ the universe-sphere-shell relative to the zero point and center C of the universe.

Documents E3 (author's text & formulas Franklin Roos) and E3-1 (gravitation figures Adarshi Yadava) specifically discuss the physical origin of gravity from the 'shell'-electrons of atoms as a result of the speed/speeds of the atom in the universe. **Document E3-2** describes the 9 to 11 dimensional structure associated with those 9 to 11 different speeds in the composition of gravitational components.

Due to the spread of gravity over the entire universe, including through those immense vacuum spaces, a gigantic quantitative 'dilution' occurs. As a result, gravity manifests itself universe-wide as a real physical force, but at the same time also as a quantitatively extremely weak force.

Because of its infinitely great speed, gravity is the only force of the atom that is active universe-wide as well in real time and everywhere simultaneously.

Gravitation continuously disappears outside the universe, but is also continuously re-generated by and from the 'shell'-electrons of all normal and all black hole atoms as a form of 'radiation' that, like time, is not based on particles with mass, charge and spin.

Documents F1d & figures and document F1e & figures.

4.1 SPEED ATOM NOT ONLY GENERATES GRAVITATION BUT SEPARATELY ALSO 2 PHYSICAL AND 2 CHEMICAL FORCES/ BONDS:

In addition, these speeds of atoms in the universe also provide an 'added' amount of kinetic energy to both the 'shell'-electrons and the atomic nucleus.

Cancelling out this 'added' kinetic energy, these 'shell'-electrons of atoms, in addition to gravity, also separately generate 2 physical forces and 2 chemical forces with which bonds between atoms can be formed.

-) one force/ bond/ bindings for single 'shell'-electrons and separately
-) one force/ bond/ binding for the 'shell'-electron pairs of the atom.

By forming such physical and chemical bonds, binding heat is released as EM radiation and as photons of light & infrared/heat. Via EM radiation that by speed 'added' kinetic energy is reduced again and discharged towards outside the atom. Due such physical and chemical bonds and EM radiation, the 'shell'-electrons involved transfer into an energetically more favourable orbit around their atomic nucleus.

In physical bonds, these electron/ electron pair remains around its own atomic nucleus; in chemical bonds in the orbit around jointly shared atomic nuclei.

4.2 EVERY FORM OF SPEED GENERATES ITS OWN COMPONENT OF FORCE & BINDING:

Each of these 9 to 11 speeds of atoms in the universe generates:

- 1) its own component of gravity (linearly related to speed. This forms the basis of quantum gravity) as well as
- 2) its own component of physical forces and of chemical forces (linearly related to kinetic energy and therefore quadratically related to speed) and results
- 3) in its own specific component in physical and chemical bonds/bindings of atoms. **Document F1d & figures and document C.**

These 9 to 11 different speeds result in a 9 to 11 dimensional component structure in physical and chemical bonds between atoms/ molecules. The basis of quantum mechanics.

4.3 PHYSICAL CHARACTERISTICS GRAVITATION AND TIME:

Gravitation and time are the only physical phenomena that occur without transfer via particles, charge, spin and energy and therefore without surrounding electric and magnetic micro-fields. Gravitation and time are the only physical phenomena that are not surrounded by electric and magnetic micro-fields.

Both time and gravity therefore do not require such electric and magnetic micro-fields as an 'ether' to move. Gravitation and time are the only phenomena that can move through absolutely vacuum spaces and any form of 'ether' of atoms is absent.

Gravitation (and time/UCT) are the only physical phenomena that move super-luminally ($v \gg c$) through the entire universe, including through the areas that are absolutely 100% vacuum. These vacuum areas are present both inside and outside the thin, perfectly round universe-sphere shell/ USS with many billions of galaxies. That USS has a radius of currently approximately 10 – 12 billion light years may be even more.

This speed $\gg c$ requires a fundamental adjustment/ expansion of the theory of relativity.

4.3.1 UNIVERSE CLOCK TIME/ UCT AS A MONO PHENOMENON:

Time/UCT is linked to the cycle of the universe. The universe clock time/UCT is exactly the same everywhere in the universe. Everywhere in the universe that UCT is being completed with exactly the same linearly advancing speed. Because everywhere in the universe/USS exactly the same time/ UCT always applies time/ UCT only manifests itself as just one mono component/ phenomenon.

4.3.2 GRAVITATION CONSTRUCTED FROM 9 to 11 PARALLEL COMPONENTS:

Unlike time, gravity is made up of 9 to 11 parallel gravitational components.

Documents E3, E3-1 and E3-2 www.uitewijkwinkel.eu have described since 2007 the physical origin of those 9 to 11 parallel forms of rotation speeds of the atom in the universe and the associated 9 to 11 component structure of gravity.

4.4 MATHEMATICAL EXPLANATION EINSTEIN ↔ PHYSICAL EXPLANATION ORIGIN & STRUCTURE GRAVITATION:

In the theory of relativity, **Einstein** only provided a purely mathematical explanation for and derivation of the phenomenon of gravity. In the universe/ USS space and time are perfectly curved by themselves without generating any physical form of gravitation.

Unfortunately **Einstein** did not have nor did provide any physical explanation for the origin of the phenomenon gravity, nor did he gave any insight into the parallel structures with components of gravity as a result of those 9 to 11 different (mainly rotational) speeds of atoms in the universe/ USS.

Physically, gravity as well as the other 2 physical and 2 chemical forces of the atom are generated from the 'shell' electrons of atoms as a result of the 9 to 11 possible velocities of those atoms in the universe. **Document F1d & figures.**

These 9 to 11 speeds of atoms in the universe create:

a) 9 to 11 different deviations in the orbits of all 'shell' electrons of those atoms. These deviations were already observed before WWII by **Heisenberg** who, like **Einstein**, had no plausible explanation for the cause of these deviations nor any explanation of how those 'shell'-electrons react to those deviations in their orbits. Within Science, the author was the first to make the link between the deviations observed by **Heisenberg** and the speeds of atoms in the universe!

Due to these speeds in the universe, 9 to 11 different forms of kinetic energy are added separately to these 'shell' electrons and to their atomic nuclei.

b) Atoms with no speed in the universe do not generate gravity nor these 2 physical and 2 chemical forces.

c) Atoms without speed in the universe/ USS do not generate any form of gravity nor any form of physical and chemical forces/ bonds/ bindings.

Ad a) In protest against and to counteract those 9 to 11 deviations in their orbit, the 'shell' electrons of both ordinary atoms and black hole atoms generate 9 to 11 parallel forms of gravity. Only equal gravitational components attract each other. Gravitational components that differ from each other neither attract nor repel each other. This component structure forms the basis of quantum gravity.

Ad b) To reduce the level of kinetic energy 'added' by 9 to 11 speeds, these 'shell electrons' generate 2 physical and 2 chemical forces with which these forces can form bonds. Only equal components of those forces mutually attract (or mutually repel) each other.

Document F1d & figures explains the origin of these 2 physical and 2 chemical forces & bonds of the atom. These forces and bonds have the same 9 to 11 dimensional parallel structure in force and bond components as gravity related to the different speeds of atoms in the universe. Physical and chemical bonds are made up of the same 9 to 11 physical and chemical binding components.

When forming such bonds consisting of 9 to 11 sub-bonds, standard heat/ 'added' energy is released in the form of EM radiation from photons of light/infrared. By forming physical and chemical bonds, these 9 to 11 deviations in the orbits of the 'shell' electrons involved decrease correspondingly quantitatively! This component structure forms the basis of quantum mechanics.

These 2 physical and 2 chemical forces of atoms and bonds between atoms are therefore linked to quite complex 9 to 11 movements of atoms in the universe and therefore have a very complex universe-related structure, just like gravity!

Quantum gravity & quantum mechanics can only be solved qualitatively and quantitatively once the current 9 to 11 different speeds of atoms in the universe have been filled in both qualitatively and quantitatively.

These speeds can only be determined quantitatively after mathematical modelling of the universe and the endlessly repeating, overall energy-neutral, cycle of the universe.

Documents G14 & G15. Euclid is an important first step in that process.

In the universe, all atoms and their 'shell' electrons are currently subject to a minimum of 3 - 5 (mostly rotation) velocities within the clusters of galaxies up to a maximum of approximately 9 to 11 different components of velocities/ forms of acceleration!

Each of those 9 to 11 different speeds/ accelerations results in its own specific form of gravity as well in its own component within those 2 physical and 2 chemical forces and within their 9 to 11 components of their bonds/ bindings.

Ad c) In atoms without any speed / acceleration in the universe, the 'shell' electrons follow perfectly circular orbits around their atomic nuclei. However, such perfect 'shell' electrons do not generate any form/ components of gravity nor any form/ components of those 2 physical and 2 chemical atomic forces & bonds.

In the absence of velocity, all electron pairs are also gone. The atom as such is based on its elemental forces and still remains intact. All atoms of the periodic table are then without gravity and completely inert, both physically and chemically. They only occur as a super cold gas and a temperature equivalent 0 Kelvin.

4.5 PHYSICAL CHARACTERISTICS OF GRAVITATION:

Gravitation spreads: a) evenly on all sides, b) without particles (i.e. without graviton) and c) via the 9 to 11 different and simultaneously present (velocity) components of gravity.

Each of those 9 to 11 components of gravity is specifically linked to its own speed and is therefore linked to one of those 9 to 11 different speeds that atoms can experience in the universe!

Only like components of gravity attract each other across the universe incapable forming real bonds.

Those 2 physical and 2 chemical forces of ordinary atoms can form real 9 to 11 dimensionally structured physical and chemical bonds via electron pairs. In addition, standard binding energy is emitted in the form of photons of light and infrared!

4.6 STRUCTURE GRAVITATION:

In physical terms, gravity is only generated from all 'shell'-electrons of:

- a) ordinary atoms of the periodic table starting with H (**document F1d & figures**) and
- b) black hole atoms starting from Be (**document F1e & figures**).

Physically, gravity is the result of the 9 to 11 different speeds of ordinary and black hole atoms in the universe. These speeds result in 9 to 11 different deviations in the orbits of all 'shell'-electrons of the atom and are specifically linked to each of those 9 to 11 different speeds/ gravitational components *specifically* linked to each of those 9 to 11 speeds!

Linking gravitation to the speeds of atoms in the universe results in a rather complex phenomenon!

The single 'shell'-electrons of ordinary atoms starting H and black hole atoms starting Be (**F1e & figures**) generate the same components of gravity!

In physical terms, entanglement of atoms occurs via those 9 to 11 different components of gravity by using lasers to make specific quantitative changes in the current deviations of those 'shell' electrons as a result of the current speeds of those atoms in the universe.

Under super-cold conditions, near 0 Kelvin, lasers can be used to introduce specific and therefore traceable characteristics into the orbits of 'shell' electrons. This provides these 'shell'-electrons recognizable characteristics that are in principle only known and traceable by the applicator. This also applies to changes in qubits.

4.7 VELOCITIES OF ATOMS IN THE UNIVERSE ARE ONLY PARTIALLY KNOWN, BOTH QUALITATIVELY AND QUANTITATIVELY:

The problem is that those 9 to 11 different speeds of the atom in the universe are only partly known. Many speeds have not yet been mapped out, let alone quantified.

Analyzing those 9 to 11 speeds can only take place through mathematical modeling of the universe and its endlessly repeating overall energy-neutral cycle of 29 steps. **Documents G6, G7, G8, G12** www.uitewijkwinkel.eu outlines the entire universe cycle from the very first second to the very last second. Step 29 equals step 1 of this cycle and is the start of the next very same cycle of the universe.

Documents G14 & G15 qualitatively describe the design of the mathematical model of the universe cycle. Necessary for qualifying and quantifying that universe and for the development and later disappearance of speeds.

In summary:

Because gravity and time do not require a material conduction medium, gravity and time are the only physical phenomena that move uniformly on all sides through the entire universe and its universe-spherical-shell/ USS:

- a) with an infinitely fast speed (\gg speed of light c),
- b) gravitation and time are the only ones that move as well through the enormous absolute 100% vacuum spaces within and outside the universe/ USS/ thin balloon of many billions of galaxies and
- c) gravity and time leave the universe at the same moment they are generated without particles and thus without any consequences for the total amount of mass, matter and energy present in the universe. The universe is and remains 100% closed to mass, matter and energy and is only 100% open to gravity and time/ universe clock time/ UCT!

All other forms of electromagnetic radiation can only travel in the universe via that thin, perfectly round universe-spherical-shell. Locally at galaxies that USS is some thousands of lightyears thin/thick. In between these galaxies this USS may be just tens of km's thin/thick. All EM and cosmic radiation stay inside this USS and there present extremely thin gases/ 'ether' of H, H₂ and He, which are only present between those galaxies! **Figures 36p, 36q and 36r document G8/ G12.**

Provisional conclusion: with qubits based on gravity, information transfer can take place with: a) an infinitely high speed and b) via 9 to 11 parallel gravitational components of atoms in such a qubit.

Normal computers whose chips are based on EM radiation also rely on the same 9 to 11 (speed) components. In principle, about 9 to 11 parallel processing of information is also possible here.

These signals are much more *powerful* than those of gravity, but that transfer is limited to the speed of light c .

***5) QUBITS: LITTLE KNOWN PHYSICAL/CHEMICAL STRUCTURE OF QUBITS AND ABOUT ENTRANGEMENT:**

5.1 MUCH UNKNOWN:

Outside the small circle of directly involved scientists, very little is known about the nature, technical implementation and physical aspects surrounding qubits and entanglement of particles of matter. The phenomenon of entanglement is surrounded by much mystery and ambiguity. This also applies to the infinitely fast and parallel processing of information via qubits. For physical reasons, that process must take place via gravity.

Due to the enormous commercial interests and security aspects, almost all matters surrounding qubits & entanglement can be regarded as industrial (top) secret and surrounded by scientific restraint, partly because of the aspects of military importance.

5.2 QUBITS ONLY POSSIBLE ON THE BASIS OF GRAVITATION/ TIME:

On Earth, all atoms present in qubits are subject to 9 to 11 different speeds, all generating the same 9 to 11 parallel gravitational components. With qubits and quantum computers, the currently ubiquitous limitation of the speed of light c can only be circumvented if the operation of qubits is based on: a) gravity and b) on the 9 to 11 different components of gravity.

Only with gravity is communication no longer based on particles and parallel processing is also possible: a) at an infinitely high speed, b) in real time and c) in principle simultaneously universe-wide. The disadvantage, however, is that gravity is such an extremely weak force!

5.2.1. REMOTE ENTRANGEMENT ONLY POSSIBLE BASED ON GRAVITATION/ TIME:

Through manipulation and bombardment with lasers, the 9 to 11 speed deviation in the orbits of 'shell' electrons can be selectively adjusted and thus give atoms the same specific characteristics. This is only possible if qubits are present as super cold solids with a temperature near 0 Kelvin.

Only near absolute zero can characteristic changes be made in the orbital speed of 'shell' electrons and thus specific changes in their gravitational components via structural laser bombardment. Specific entanglement between atoms/molecules and in qubits can be given shape and content through such differences in the gravitational components, which can be introduced by lasers.

This specific entanglement is very distinctive and can therefore be made 'readable'. The information provided is only accessible to the person who made the change. The specific entanglement via gravitation is the most essential aspect of qubits in the processors under development in quantum computers.

5.3 DETAILING THE QUESTION OF QUBITS:

- a) Can a physical representation be given that underlies entanglement and the structure of entanglement?
- b) Which particles can entangle with each other and which cannot?

- c) Is this entanglement also possible on the basis of: 1) electromagnetic (EM) radiation, 2) cosmic radiation or 3) exclusively via gravity from the 'shell'-electrons of the atoms present in qubits?
- d) How can such a gravitation-based entanglement be technically realized?
- e) Up to what distance is entanglement technically possible, observable and realizable?
- f) How quickly does such an entanglement exchange? With at most the speed of light or, like gravity, with infinitely great speed?
- g) Is a medium required for the transmission of such a signal? Choices:
 - 1) exchange via EM radiation (with limitation to the speed of light c),
 - 2) exchange via cosmic rays (with limitation to the speed of light c as well) or
 - 3) via gravity (not limited to the speed of light)?
- h) Does that communication only take place via gravity?
- i) Does entanglement occur at all temperatures?
- j) Can entanglement only occur at/near absolute zero and only then can it be measured?
- k) Are quantum computers based on qubits possible or not?

5.3.1 ANSWER OPERATION & STRUCTURE OF QUBITS:

Ad a) Can a physical representation/interpretation be given that underlies entanglement and the structure of entanglement?

Yes. At distances of approximately 1 km or more, entanglement is only possible via changes in one or more simultaneously active gravitational components. This can only be read if the gravitational components have changed identically.

However, due to the infinitely high speed ($\gg c$) of gravity, this entanglement also applies universe-wide. Physically, gravity however is an extremely weak force. In reality, such differences in gravitational components are no longer measurable/ demonstrable at a distance of 2 - 3 km.

Ad b) Which forms of particles/matter can entangle with each other and which cannot?

Only 'shell' electrons of ordinary atoms can become entangled with each other. Black hole atoms cannot be entangled.

This entanglement of ordinary atoms can be achieved by using lasers to make equal specific changes in their orbits around their atomic nucleus at one or more of the 9 to 11 speeds of these 'shell' electrons. This can only be applied at/ near absolute zero.

These differences in speed/ gravitational component(s) must be known and can be measured quantitatively after making the changes. These differences form the basis of encryption in qubits.

Ad c) Is this entanglement also possible on the basis of: 1) EM radiation, 2) cosmic particle radiation or 3) exclusively via gravity from the shell electrons of the atoms present in qubits?

No. This encryption via gravitational components is not possible via EM radiation and cosmic particle radiation because those particles (neutrinos, photons, quarks, protons, electrons and neutrons) do not generate gravity themselves.

Gravitational entanglement therefore only works with atoms. And only at a relatively short distance of a maximum of approximately 1 - 5 km. This gravitational entanglement is in principle active throughout the universe! In practice, however, that range is extremely limited because gravity is such an extremely weak atomic force.

Ad d) How can such a gravitation-based entanglement be technically realized?

By bombarding with lasers, specific, recognizable and quantitatively measurable changes can be made at/near 0 Kelvin in the orbits of 'shell' electrons of atoms present in both normal chips and qubits.

Ad e) Up to what distance is entanglement technically possible, observable and realizable?

For regular computers/chips, the range is limited to approximately 1 - 5 km. In principle, a universe-wide range applies to qubits and gravity. But that range is severely limited to a maximum of a few kilometers because gravity is such an extremely weak physical force.

Ad f) How quickly does such an entanglement exchange? With the speed of light or less or equal gravity with infinitely great speed?

For all EM radiation, cosmic particle radiation and gravitational energy shock waves (LIGO), the speed of light c is the absolute upper limit due to their wave nature.

Only gravity moves without particles, waves and thus does not need an 'ether'. By default, gravity has an infinitely large speed with no quantitative lower limit.

Ad g) Is a medium required for the transmission of such a signal?

A medium is necessary for a) exchange via EM radiation and this also applies to all forms of particle radiation as well as c) for shock waves of gravitational energy. Such wave motion & particle related radiation cannot travel through these enormous, absolutely 100% vacuum spaces in the universe. This results in a 100% closed universe for mass, matter and energy.

In the universe, EM radiation, cosmic particle radiation and these shock waves of gravitational energy (measured by **LIGO**) can only travel via those between the billions of galaxies of the universe-spherical-shell and via the medium/ ether of H, H₂ and He gases only present in between those galaxies.

This limitation to the speed of light c does not apply to gravity. Gravitation itself alone moves without any need for the presence of a medium. Gravitation is the only one that moves in all directions at speeds \gg the speed of light c and leaves the universe at the same time.

Ad h) Does that communication $\gg c$ only take place via gravity?

Yes. Only gravity moves at speeds $\gg c$. All other forms of communication are limited to a maximum of the speed of light c due to the need for a medium and the electrical and magnetic micro-fields emitted by the medium itself.

Ad i) Does this entanglement take place at all temperatures and is it temperature independent?

No. In principle, entanglement can only be created and maintained at extremely low temperatures near 0 Kelvin. Temperature interferes with the application, measurement, retention and quantification of the entanglement. Application and measuring must take place near absolute zero. Entanglement can only occur if atoms have undergone the same change via laser bombardment and those changes are known and measurable.

Ad j) Is that entanglement only measurable at/near absolute zero of 0 Kelvin?

Yes. The disruptive influences of temperature on atoms/molecules in the qubits are then reduced to a minimum.

Ad k) Are quantum computers and parallel processing of information based on qubits possible or not?

Yes both are possible. This parallel simultaneous processing of information processing via parallel paths is theoretically possible. Qubits and quantum computers are therefore possible. However, technologically difficult to realize and to handle.

In principle, such parallel processing is also possible via normal chips via much stronger signals, but limited to the speed of light c .

***6) ELABORATION OF GRAVITATION FOR QUBITS:**

6.1 CHANGE ORBITIES OF 'SHELL'-ELECTRONS AROUND ATOMIC NUCLEAR:

How can such entanglement via gravitation between atoms and specifically between qubits be physically represented? Such an entanglement, present at great gigantic distances, and the infinitely fast exchange of information associated with that entanglement, is only technically possible via gravity and by making changes in the gravitational components. Before applying and reading, these qubits must have been cooled to near absolute zero (< 4 Kelvin).

By bombarding these super-cold qubits with one or more lasers we can:

a) specifically increase or decrease the speeds of the 'shell' electrons around the atomic nucleus and thus change the trajectory of these 'shell'-electrons. The specific associated gravitational component(s) also changes accordingly!

b) by increasing, decreasing or perhaps even completely eliminating one or more of those 8 to 10 'rotation' speeds of atoms in qubits. (The expansion speed of the universe cannot be eliminated!)

These 'shell'-electrons of the atom therefore receive a specific energetic information characteristic that provides an associated specific profile of physical, chemical and gravitational characteristics/ components.

That information profile consists of 8 to 10 different components of: a) gravity, b) physical forces and c) chemical forces and their bonds. The changes in that profile of gravitational components are recognizable and can be read from a technical point of view near 0 Kelvin.

Only the person causing these deviations knows in principle which speed change(s) have been made in those 8 to 10 different rotational speeds and the associated changes in the profile of gravitational components and in the profile of physical and chemical forces of the involved 'shell'-electrons of atoms/ molecules present in the qubit.

After all, he/she knows what changes have been made in the component(s) of gravity and in those of physical and chemical forces and their bonds.

6.2 PARALLEL DEVELOPMENT ALSO POSSIBLE VIA PHYSICAL AND CHEMICAL FORCES/BONDS:

In addition to gravity, the same and much more clearly observable and measurable changes occur in the physical and chemical forces & their bonds of the atom in question in the qubit. These changes can be made much more clearly readable and recognizable and can therefore be used as information/ deciphered. This parallel communication and exchange of information via physical and chemical force/ bond components however is limited to the speed of light c . These changes can be made from outside via lasers, monitored, controlled and thus traced and destroyed.

***7) DISCUSSION:**

7.1 MEDIUM IS NECESSARY TO MAINTAIN A UNIVERSE CLOSED FOR MASS, MATTER AND ENERGY:

Within current science, EM and cosmic particle radiation can also travel through absolutely 100% vacuum spaces surrounding the universe/ universe-spherical-shell/ USS/ thin perfectly round balloon of many billions of galaxies. From the current insights of Science, such an ether is not necessary for the movement of EM and cosmic rays.

That case almost all electromagnetic radiation and cosmic particle radiation would leave our universe for good via that absolute vacuum. Then our universe would be as leaky as a basket and run out of mass, matter and energy; this run literally empty. The consequence the universe as only a one-off phenomenon.

Only in case the universe *primarily* forms a 100% closed system for mass, matter and energy, all matter and energy remain together. That case the universe can endlessly go through the same, overall energy neutral, cycle. Such an endlessly repeating universe, the primary requirement is that EM and cosmic radiation cannot penetrate those absolutely vacuum spaces. That case these absolute vacuum spaces on either side, together with gravity, ensure a 100% closed universe for all forms of mass, matter and energy.

Secondary this cycle of the universe overall has to be passed energy-neutral. **Document G7** describes this cycle of the universe overall as energy-neutral. Within that closed system the universe endlessly passes the very same cycle of now 29 steps.

7.2 WITHIN CLOSED UNIVERSE / MEDIUM OF H, H₂ AND He, THE SPEED LIMITATION APPLIES TO THE SPEED OF LIGHT c :

All forms of electromagnetic EM radiation occur via particles that are made up of as many particles with mass, charge and spin as Higgs particles, strings and strings with anti-mass and opposite electric charge and magnetic spin. **Document F1b figures**. When measuring, those equivalent super symmetrically (SUSY) Higgs, strings, mutually cancel each other out quantitatively.

However, neutrinos and photons are surrounded by their existing electric and magnetic micro-fields. These particles are constructed as many Higgs as anti-Higgs and thus have no measurable mass, charge and possibly spin on their outside. However, in reality these particles do have mass, charge and spin, but overall this is equal to zero.

All particles of EM radiation and cosmic radiation generate electric and magnetic micro-fields around themselves. These particles can only move via wave motions and via micro-fields emitted by conduction media/ 'ether'. Because of the wave motion required for their

movement, these neutrinos/photons can only move in the universe via the electric and magnetic micro-fields emitted from atoms such as H, H₂ and He. These elements are only present as 'ether' in the universe-spherical-shell between the galaxies and there too only in extremely low concentrations of a few atoms/molecules /cm³.

Just enough to serve as 'ether' and make the universe visible from Earth! This conduction via the micro-fields around H, H₂ and He goes from atom to atom, which limits the speed of transfer/ wave movement to a maximum of the speed of light c. As 'ether' just a few atoms/molecules per cm³ are already sufficient for the required conduction/ 'ether'!

Due to the necessity of the presence of an electric/ magnetic conduction medium/of (H, H₂ and He atoms/ molecules/gases), these forms of radiation can only travel within that, only one galaxy, thin/ thick, universe-spherical-shell/ USS and the extremely low concentrations present there. of H, H₂- and He gas.

The 100% vacuum present both inside and outside that perfectly round universe-spherical-shell/ USS and the electric and magnetic micro-fields required for transport/ movement are completely absent. As a result, neutrinos, photons, and cosmic particle radiation cannot penetrate areas with a 100% vacuum that are absolutely empty. This prevents observing the opposite part of our universe through those vacuum areas. **Figures 36p, 36q and 36r documents G8/G12** illustrate the macro structure of our balloon shaped universe and how we observe that universe/ balloon of galaxies from planet Earth. These observations are blended by optically illusions!

All forms of electromagnetic radiation and cosmic particle radiation can only travel in the universe via that thin universe-sphere shell, because only there are extremely low concentrations of H, H₂ and He as a conduction medium/ 'ether'. This restriction forces all forms of EM radiation and cosmic radiation to remain 100% within that perfectly curved universe-sphere shell and this radiation can only move there.

None of these EM rays and cosmic rays can leave that thin, one-galaxy-thick universe-spherical-shell! We therefore see/ observe the universe exclusively through that thin, perfectly curved universe-spherical-shell. **Figures 36p, 36q and 36r document G8/G12.**

At the location of galaxies, the universe-sphere-shell/ USS is some thousands of light years thick. Between those galaxies, that medium may only be a few tens to hundreds of kilometres thick.

7.3 DUE TO THE NEED FOR A MEDIUM/ 'ETHER', THE SPHERICAL SHELL FORMS A 100% CLOSED SYSTEM FOR RADIATION:

Inside and outside the universe-spherical-shell/ USS there is an absolute 100% vacuum without atoms and therefore without the required electric and magnetic micro-fields. Due to the absence of such micro-fields, EM radiation and cosmic particle radiation cannot penetrate those gigantic absolute vacuum regions of the universe. This results in a thin, perfectly round, universe-sphere shell as a 100% closed system for all forms of EM and cosmic radiation that are based on particles with mass, matter, charge, spin and energy.

That 100% closed system and that limitation to the speed of light c also applies to the transmission of gravitational energy shock waves as observed and measured by **LIGO/VIRGO**. Those shock waves of gravitational energy are also transmitted exclusively

through that thin, perfectly curved universe-sphere shell with only the medium/ether of H, H₂ and He gases present there.

This results in a fundamental physical difference between the recently discovered gravity at pulsars itself and the gravitation derived shock waves of gravitational energy!

All forms of EM radiation, cosmic rays and shock waves and gravitational energy can only travel via that transport medium containing H, H₂ and He.

Gravitation further slows down the expansion rate of atoms/celestial bodies in the universe-sphere shell. Gravitation ensures that the expansion rate of the universe-spherical-shell/ USS is slowed down to ultimately zero during the next 350 to 450 billion years.

Then all expansion speed has also been converted into rotation speed of the that moment remaining 4 - 20 million central cluster black holes (CCZG's). The universe/ the universe-spherical-shell/ USS then will be absolutely dark and consists of a perfectly round balloon with only 4 – 20 million fast rotating CCZG's. Without any form of EM and cosmic radiation.

Gravitation ensures that the universe is and remains a 100% closed system for all ordinary atoms and for all black hole atoms in black holes. The extremely thin gases and gravity together ensure a 100% closed universe for all forms of EM radiation and cosmic particle radiation with associated mass, matter and energy.

7.4 UNIVERSE ONLY OPEN TO GRAVITATION AND UNIVERSE CLOCK-TIME/ UCT:

This limitation of movement through the universe-sphere shell and up to the speed of light c does not apply to: a) gravity itself and b) to time/the universe-clock-time/ UCT.

Gravitation and time spread throughout the universe even without a medium. This happens without any form of waves/wave movement. Gravitation and time are the only physical phenomena that are not bound to the medium/'ether' of H, H₂ and He for their displacement.

Time / the universe clock time is linked to the position of matter in the universe relative to centre C universe. Universe-clock-time/ UCT is linked to the location of matter in the universe-sphere-shell relative centre C.

That universe clock time is one dimensional. That UCT unfolds everywhere in the universe with the same linear speed and only in a forwards motion. Everywhere in the universe-spherical-shell/ USS exactly the same linearly advancing universe clock time/UCT always applies.

Gravitation and time/ UCT move with infinitely high speed ($\gg c$) through the entire universe, including through those absolutely 100% vacuum spaces present on either side of that thin, perfectly round universe-spherical-shell/ USS. This spread over the entire, largely absolute vacuum, universe results in gravity being such an extremely weak force in quantitative terms.

7.5 GRAVITATION AND TIME/UCT ENTANGLE ALL ATOMS OF THE UNIVERSE EACH OTHER CONTINUOUSLY:

Through gravity and the spread of gravity (and time) $\gg c$, all ordinary atoms (from element H) in celestial bodies and all black hole atoms (from element Be) of black holes in the universe are constantly connected in real time. Those 9 to 11 (speed-related) components of gravity continuously entangle all matter in the universe into one whole.

7.6 GRAVITATION NO EFFECT FOR CLOSED SYSTEM UNIVERSE:

The emission of gravity (and time) outside our spherical universe takes place without particles and therefore without any mass, charge and spin. This emission of gravity (and time) does not result in a loss of mass, matter and energy towards outside the universe. Gravitation and time have no effect whatsoever on the amount of mass, matter and energy present within that 100% closed universe-sphere-shell of billions of galaxies!

At large(er) distances, entanglement and associated infinitely fast signal transfer of information is only possible on the basis of gravity and via its 9 to 11 parallel gravitational components! (Not to be confused with the gravitational energy shock waves observed and measured by **LIGO/VIRGO**).

7.7 GRAVITATION & TIME/ UCT NEED TO ADJUST THEORY OF RELATIVITY:

The physical origins of gravity and time and their speeds \gg speed of light c require Science to make a major expansion of the theory of relativity. The author's comments, expressed in **document G5** www.uiterwijkwinkel.eu can therefore also be taken into account.

***8) CONCLUSIONS:**

- 1) Qubits can only process information in parallel and at speeds \gg the speed of light c via:
 - a) gravity and b) via the 9 to 11 parallel components of gravity.
- 2) Such parallel processing of information is also possible via the 9 to 11 parallel components of physical forces/ bonds as well via chemical forces/ bonds. With maximum the speed of light c .
- 3) Qubits are based on making precisely traceable adjustments via lasers to the orbital speeds and orbits of 'shell'-electrons around atomic nuclei and the effects thereof on the 9 to 11 gravitational components emitted by these 'shell'-electrons. Each gravitational component is specifically linked to one of the 9 to 11 different speeds of atoms in the universe.
- 4) Qubits are technically possible but difficult to realize and handle because the changes & entanglement via lasers must take place at extremely low temperatures near 0 Kelvin. That information is only maintained as long as this low temperature is maintained. In the event of a temporary temperature increase, the stored information will be destroyed.
- 5) The fundamental problem is that not all of the 9 to 11 different speeds of the atom in the universe are known yet, let alone specified quantitatively.
- 6) The speeds of atoms in the universe must first be technically mapped via the recently launched **Euclid** project. This project aims to use measurements to determine the speeds of stars and galaxies both qualitatively and quantitatively.
- 7) That analysis of all 9 to 11 speeds can only take place through mathematical modelling of the universe and its endlessly repeating, overall energy-neutral, cycle of currently 29 steps. **Documents G6, G7, G8, G12** www.uiterwijkwinkel.eu describe the entire universe cycle.

8) **Documents G14 & G15** now qualitatively describe that mathematical modelling of the universe cycle with which: a) the universe can be quantified, as well b) the number of velocities present in the clusters of galaxies and c) changes in the quantitative magnitude of those velocities.

9) This complete modelling and quantification of the universe & cycle is an absolute requirement for the further development of qubits and the development of quantum computers.

10) Detect and break open the structure of the security code of qubits through analysis of the changes made in turnover rates. That is far from easy.

***9) AUTHOR'S AFTERWORD:**

Quantum computers are only technically possible after all velocities of atoms on Earth in the universe have been derived both qualitatively as well quantitatively. The **Euclid** project.

All velocities of the Earth itself and of the Earth within the universe must be known:

- a) within the cluster of 4 – 6 thousand or even more galaxies to which the Milky Way Galaxy is part of,
- b) within the Milky Way Galaxy itself as
- c) within our solar system.

From a macro perspective, this is an extremely complex system of approximately 10 or even more different movements/ speed dimensions.

Mathematical modelling of the universe and its cycle is therefore necessary.

Documents G14 & G15. Use of **AI** techniques will be a must.

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