

# ORIGIN, FORMATION AND TYPES OF GALAXIES:

## \*1) INTRODUCTION AND PROBLEM STATEMENT:

According to Science, our universe started 13.8 billion years ago from a singularity and with a superhot ( $E = mc^2$ ) Big Bang. A universe starting all sided the very same centre C of the universe, with coordinates (0.0.0) at time/ universe clock time/ UCT starting  $t = 0.00000$  sec. During this Big Bang proton/ electrons and already simple atoms like H, H<sub>2</sub> and He were formed.

This Big Bang theory does not describe the period prior to the Big Bang and start of our universe.

### 1.1 BIG BANG MUST START WITHOUT ATOMS & GRAVITATION:

In the theory of relativity **Einstein** unfortunately only gave a purely mathematical interpretation of the phenomenon of gravitation without any physical explanation / explanation for the phenomenon gravitation. A century later, that equally important *physical explanation* for gravity/ gravitation is still missing in Science! **Documents E3, E3-1 (2007) and E3-2** [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu) describe the physically origin and component structure of gravitation.

Those simple atoms/ molecules, as formed conform the Big Bang theory, physically the same moment of this Big Bang would have generated as well gravitation, gravitational energy and temperature. According such superhot Big Bang that whole gravitation would arise and be concentrated at just one point, centre C, in the universe. That one point concentrated gravity would have locked up all atoms in a kind of black hole which immediately means the end of that universe.

The universe can only develop further in case it starts exclusively with protons/ electrons and without the formation of atoms and thus starts without gravity, gravitational energy and temperature! Resulting in a super cold start (equivalent 0 Kelvin)!

In the current universe normal atoms (**document F1d & figures**) and blackhole atoms (**document F1e & figures**) are present physically generating much more gravitation (= dark matter) as well extremely much more gravitational energy (= dark energy) than can be deduced on the basis of **Einstein's**, only mathematical, approach of gravitation!

Due that lack of a *physical explanation for gravity* Science saddles itself with insoluble problems such as 'dark' matter and 'dark' energy!

### 1.2 PHYSICAL ORIGIN GRAVITATION:

**Documents E3, E3-1 and E3-2** describe the physical origin as well as the speed/ component structure of gravitation as a physical addition to **Einstein's** purely mathematical interpretation and explanation for gravitation and gravitational energy!

Those physical forms of gravitation are generated both from single 'shell'- electrons as well from the 'shell'-electron pairs of atoms as a result of the velocity of the atom in the universe. **E3-1, figures 1a, 1b and 1c.**

The universe-spherical-shell is divided in about 4 – 20 millions of identically clusters of galaxies each containing 4 – 6 thousand or more galaxies. Within such clusters of galaxies atoms can be subjected to up to about 9 – 11 different velocities. In particular as rotational speeds.

Each of those 9 – 11 velocities inside these clusters/ the universe results in its own deviation in the orbit of the 'shell'-electrons/ electron pairs around their atomic nucleus. **Figures 1a, 1b and 1c document E3-1.**

Those single 'shell'- electrons and electron pairs protest against those due 9 – 11 speed caused deviations in their desired, ideal and perfectly round, orbits around their atomic nucleus and the due these different speeds 'added' components of kinetic energy as a result.

These 'shell'-electrons show this protest by generating forces such as:

- a) 2 kinds of gravitation in 9 – 11 components and
- b) by generating 2 kinds of physical forces and 2 chemical atomic forces and by forming bindings/ bonds in 9 – 11 components as well.

**Documents E and F1d & figures.**

### **1.3 QUANTUM GRAVITATION AND QUANTUM MECHANICS HAVE THE SAME BASIS:**

Each of those possible 9 – 11 velocities in the universe generates its own physical component of gravitation and generates its own component of gravitational energy. **The basis of quantum gravity.** (Single shell-electrons and electron pairs generate different types and components of gravity)

In addition, those single 'shell'- electrons/ electron pairs of atoms generate 2 physical and 2 chemical forces / bonds via those 9 – 11 velocities and forms of 'added' kinetic separately.

**The foundation and basis of quantum mechanics.**

Those physical forms of gravitation and the basis of quantum mechanics rely on the same 9 – 11 different velocities of atoms in the universe within their clusters of 4 – 6 thousand (or more) galaxies.

Throughout the universe, gravitation and these physical and chemical forces/ bonds of atoms in their clusters are built up from the very same 9 – 11 parallel components of gravity and those of physical & chemical forces and their bonds/ bindings as present inside the cluster the Milky Way galaxy is present..

Complex for sure! All the more so because we currently do not all know these 9 – 11 different velocities of atoms, let alone have quantitatively filled in these 9 – 11 velocities within these 4 – 20 clusters of 4 – 6 thousand galaxies!

### 1.3.1 EUCLID:

The recently launched **Euclid** will measure the movements and velocities of stars and those of galaxies. This satellite is expected to bring more clarity regarding:

- a) the exact number of 9 – 11 movements within these clusters if
- b) give a quantitative interpretation of those 9 – 11 movements.

The qualitative and quantitative determination of those speeds is necessary and required for:

- ) the quantitative structure of the components of gravity and gravitational energy, (linear to  $v_1, v_2, v_3, v_4, v_5, v_6, v_7, v_8, v_9, v_{10}, v_{11}$ ) and
- ) the build-up of 'added' kinetic energy and resulting physical forces/ bonds of atoms, (linear to kinetic energy and  $(v_1)^2, (v_2)^2, (v_3)^2, (v_4)^2, (v_5)^2, (v_6)^2, (v_7)^2, (v_8)^2, (v_9)^2, (v_{10})^2, (v_{11})^2$ ).

### 1.4 UNIVERSE IS THIN UNIVERSE SPHERICAL SHELL WITH BILLIONS OF GALAXY ARRANGED IN 4 – 20 MILLION CLUSTERS:

Equilateral starting from one point, centre C universe, that universe now must have the form of a thin, perfectly round, universe-spherical-shell/ USS/ a thin balloon with many billions of galaxies. The spaces present inside and outside that thin universe-spherical-shell are absolutely empty and form an absolute 100% vacuum.

This thin, perfectly round, balloon-shaped universe consists of many billions of galaxies with only extremely low concentrations of H, H<sub>2</sub> and He in between these 'skin' of galaxies. The universe in fact is thin spherical-shell/ balloon of many billions of galaxies and in between extremely low concentrations of H, H<sub>2</sub> and He gases which has a radius of about 10 – 12 billion light years and possibly even more.

This thin universe-spherical-shell/ USS/ balloon is divided into approximately 4 – 20 million identical clusters, each containing about 4 – 6 thousand or more galaxies. Within these about 4 - 20 millions of clusters, the same 9 – 11 speeds are present also apply quantitatively.

The universe/ USS/ balloon as a whole and universe-sphere-shell with millions of clusters is absolutely stationary and does not rotate!

### 1.5 UNIVERSE WITH MUCH MORE GRAVITATION AND GRAVITATIONAL ENERGY PRESENT,

Because of these 9 – 11 velocities present in all clusters, *physically* much more gravitation and gravitational energy is generated in the universe than can be deduced on the basis of **Einstein's** only mathematical vision and anno 2023 is recognized by Science.

This results in a universe in which currently a lot of gravitation is missing (= dark matter) and even a lot more gravitational energy is missing (= dark energy).

### 1.6 BIG BANG WITH GRAVITATION BLOCKS UNIVERSE DEVELOPMENT:

If atoms are formed (almost) immediately during the Big Bang, gravity and gravitational energy are also immediately generated. At the Big Bang (theory) / start of the universe, all gravitation of the universe is then concentrated around that singularity and centre C universe.

That gigantic amount of gravitation concentrated at one point causes the newly formed universe to implode already during the Big Bang and immediately transform and ending that universe directly into one large black hole.

Such a Big Bang with the formation of atoms and formation of gravity immediately blocks and nips any further development of that universe in the bud.

### **1.7 UNIVERSE DEVELOPMENT IS ONLY POSSIBLE VIA START WITHOUT ATOMS/ GRAVITATION:**

From a physical point of view, the development of that universe is only possible if that universe starts without the formation of any atoms/ molecules and thus with a 100% absence of gravity, gravitational energy, temperature and physically and chemically forces of atoms!

That is only possible in case the universe starts with an equivalent number of loose protons and loose electrons and those liberated protons and electrons are arranged as mono-spherical layers of loose protons and electrons. Only in such spherical shell-shaped configuration of mono-layers protons/ electrons results in a start of the universe without formation of atoms, gravitation, gravitational energy temperature that makes the expansion of the universe still possible!

The maximum expansion speed of those mono-spherical layers of protons/ electrons is 0.7 the speed of light  $c$ . That expansion and super cold (0 Kelvin) start of the universe occurs without any form of inflation (= expansion  $\gg$  speed of light  $c$ ) and is described in **document G6 & figures 1 – 30 G8**.

### **1.8 PHYSICALLY ORIGIN GRAVITATION:**

**Documents E3 (text author & gravitation formulas Franklin Roos), E3-1 (figures) and E3-2 (component structure gravitation)** [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) describe both the physical origin and the structure of gravitation and that of gravitational energy. The physical addition to **Einstein's** purely mathematical derivation for gravitation.

Gravitation is generated only as long as the atom is subjected to one or more of those 9 – 11 possible motions within their own cluster. (The universe as a whole and universe-sphere-shell/ USS of 4 – 20 million clusters does not rotate and is absolutely stationary!)

**Document E3-2** describes the design of those 9 – 11 possible (rotational) velocities within these clusters as basic component-structure of *quantum gravity* as well as physical and chemical forces/ bonds within *quantum mechanics*.

Atoms without any motion in the universe have a stable structure. All shell-electrons fall apart into single shell-electrons. Now all 'shell'- electrons perform, ideal round, orbits around their atom cores without any deviation (as **Heisenberg** stated).

Such ideal 'shell'-electrons do not physically generate any form of gravitation nor any form of physically/ chemically forces or bonds. Such absolute stationary atoms without gravitation become physically and chemically 100% inert. (Gravitation is a speed-derived force from the atom. Gravity isn't an elemental, mass related, force in nature).

Loose, *single protons and electrons* and all *even smaller subatomic particles of atoms* do not generate any form of gravitation by themselves as a result of motion! Only the 'shell'-electrons of atoms physically generate gravity/ gravitation (as well other physical and chemical forces of the atom)!

### **1.9 UNIVERSE IS MUCH OLDER THAN 13.8 BILLION YEARS:**

Nor does that Big Bang theory explains how the universe could have reached its current gigantic dimensions in relation to the limited age of the universe of only 13.8 billion years.

We just observe 13.8 billion lightyears of the universe because within that period of 13.8 billion years all neutrino's, photons and cosmic radiation are transferred back into new protons, electrons, hydrogen and new stars. For that reason all photons and neutrino's disappear! This we can just observe/ perceive a small part of the universe!

Recently an age of 26.7 billion years has been mentioned. The author now assumes a balloon shaped universe, radius about 10 – 12 billion lightyears, with an age of already about 50 – 65 billion years and possibly may be even more. How that universe arises?

In the previous universe/universe cycle, gravity had brought together all matter in the form of a balloon of 4 – 20 million essentially identical *central cluster black holes/CCBH's* and back in the centre C universe. During their return journey, towards centre C, all CCBH's are completely stripped from their rotational speed and thus completely stripped their rotational gravity. **Phases 26 & 27 document G7.**

Under the coordination of gravitation, all CCBH's without any form of rotation arrive at centre C at the same moment and merge into one, perfectly round Little Bang black hole/ LBBH radius some millions of km that doesn't rotates as well.

From all directions an equal amount of matter and energy flows towards centre C arriving the same moment at C resulting in the forming of one perfectly round Little Bang black hole/ LBBH of which and within which all velocities are lost during the formation of that Little Bang black hole. During that forming of LBBH all speeds & all forms of gravitation disappears as well.

(For their stability blackholes need generating an amount of gravity about 8x the gravity of our sun. That Critical blackhole gravitation/ Cribhgra of about 8 sun gravity equivalents/ SGE)

This minimum gravitation/ Cribhgra is required keeping these, each other electrically repelling black hole atoms, together and imprisoned inside that Little Bang black hole..

At the end of the contraction this LBBH is falling below that Critical black hole gravitation/ Cribhgra! Now this LBBH disintegrates into loose black hole atoms. These blackhole atoms are unstable as well and disintegrate further into an equal number of separate single protons and electrons. **Document G6 & figures 1 – 30 G8.**

Due their electric charge and magnetic spin these liberated protons and electrons arrange themselves in mono-spherical layers of protons/ electrons. Without atoms and therefore without gravity & temperature! That super cold Little Bang (0 Kelvin) took place about 50 – 65 billion years ago and marked the end of the foregoing universe as well the same moment start of the next very same cycle of the universe.

### **1.10 UNIVERSE ENDLESSLY PASSES THE SAME ENERGY NEUTRAL CYCLE:**

Within that 100% closed universe for mass, matter and energy, that universe endlessly passes and goes through the same, overall energy neutral, cycle of currently 29 steps.

In that cycle of the universe phase 16 fulfils a central role with the start & superhot Big Bangs of the spiral (S), barred spiral (BS) and elliptical (E)/M galaxies some 20 – 25 billion years ago. **Step 16 document G7 and figures 42 - 54 document G8 describes and figures illustrate.**

### **1.11 START AND BEGIN UNIVERSE/ UNIVERSE CYCLE:**

1) Every cycle of the universe ends by forming the Little Bang black hole at centre C of the universe. That LBBH eventually loses all forms of speed and thus also all forms and components of gravity and becomes instable ending in a super cold Little Bang (equivalent 0 Kelvin). That Little Bang marks the end of each cycle of the universe as well the start of the next cycle of the universe

Due to the disappearance of speeds & gravity, that LBBH loses its stability and becomes instable because all black hole atoms (**F1e & figures**) present in this blackhole electrically repel each other. Until then, gravity kept those repelling black hole atoms together and trapped them inside black holes and that LBBH. At least about 8x the gravity of our sun / about 8 SGE's is needed keeping these atoms trapped in this LBBH.

2) When the critical limit / Cribhgra of about 8 sun gravity-equivalents is crossed that super cold Little Bang black hole (temperature 2.7 Kelvin) occurs and this gigantic LB blackhole disintegrates into loose black hole atoms (**document F1e & figures**). Inside black hole atoms, the 'shell'-electrons rotate at about the speed of light  $c$  around their atom-cores. As a result of which such black hole atoms are instable as well.

3) In case insufficient gravity ( $< \text{Cribhgra} / 8 \text{ SGE's}$ ) is present protecting these black hole atoms such black hole atoms will further disintegrate into an equivalent number of loose protons/ electrons. Temperature will disappear as well. During this start of the universe or super cold Little Bang, an equivalent number of protons and electrons are released.

**Document G6 & Figures 1 – 30 G8.** During this cold Little Bang no atoms are formed!

4) Via their elementary electric charge and their magnetic spin, the liberated protons/ electrons arrange themselves during this cold Little Bang in spherical shell-shaped, tightly stuck monolayers of alternately one proton thick and one electron thick.

5) During this Little Bang the Little Bang black hole of blackhole atoms transforms into the same compact Little Bang sphere of mono-spherical layers of protons/ electrons. **Figures 28 – 30 document G8.**

No forming of new protons/ electrons during this cold Little Bang. All protons and electrons were already 100% present in that Little Bang black hole/ LBBH and all protons/ electrons originate from there and the forgoing universe.

6) Those mono-layers of protons/ electrons mutually attract each other through their elementary electrical charge and at the same time also repel each other through their equal elementary magnetic spin. This keeps all protons and electrons 100% together, in such a way

that they can continue to move side by side within their mono-spherical layers p/e and cannot escape this structure of mono-layers. **Figures 28 – 30 document G8.**

7) From the outside that Little Bang sphere, radius of some millions of km, is now being peeled off as mono-spherical layer by mono-spherical layer. These mono-spherical layers expand and move away at a maximum speed of about 0.7 the speed of light  $c$  from the Little Bang sphere with centre  $C$  universe always exactly in the centre.

8) That peeling off of this former Little Bang black hole via alternating peeling mono-layers p/e takes about a thousand years to fifteen hundred years or more! In that period, that LBBH/ the universe first swells into an extremely compact universe sphere of mono-layers p/e with a radius of approximately seven hundred – a thousand light years or more!

9) The expansion of the universe/universe-sphere-shell/USS starts via such mono-spherical layers without inflation, without atoms, without gravity and without temperature! Such a super cold Little Bang is therefore visually imperceptible. More detailed in **document G6 & figures 1 – 30 document G8 [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu)** .

10) Only after the complete peeling off is that 100% vacuum inner space of the universe that grows with  $0.7c$  /sec.

11) During the cycle of the universe a small part of the released protons/ electrons disintegrates into their basic building blocks such as neutrinos, photons and cosmic particles. During each cycle, those disintegrated protons and electrons are 100% formed back as matter by adding  $E = mc^2$  rotation energy and reconstructed as protons, electrons, hydrogen. At the beginning and at the end every cycle of the universe cycle exactly the same number of protons and electrons are present.

12) During the further expansion, that universe-sphere-shell/ USS of mono-layers p/e, which always remains perfectly round, becomes thinner and the mutual distances between the protons and electrons present within and between their mono-layers become increasingly larger.

13) Only in that configuration of mono-layers p/e the atom remains completely absent during that first long period of the universe about 10 – 15 billion years! Therefore gravitation, gravitational energy, temperature and the other physical and chemical forces of the atom also being absent this extremely long period as well!

14) During that first long period of expansion of 10 – 15 billion years and expanding about  $0.7 c$  without atoms/gravity, that thin perfectly round and curved universe-spherical-shell/ USS/ thin balloon-shaped universe reaches a radius of about 10 – 12 billion light years. (Such a gigantic large and thin spherical shell is locally completely flat)

15) In this configuration of expanding mono-layers of protons/electrons, not a single proton or electron can escape or remain behind in those vacuum spaces present on either side of this USS. An absolute 100% vacuum therefore applies both inside and outside this thin universe-spherical-shell/ USS to be formed. The universe therefore largely consists of 100% vacuum areas!

16) In laboratories on Earth such an absolute 100% vacuum cannot be technically realized. Still some atoms/ molecules always remain in such vacuum enough guiding EM radiation! So the physically properties and effects of such a 100% vacuum cannot be *scientifically investigated or proved!* Only theoretically!

17) That's important because photons, neutrino's and cosmic radiation cannot enter the 100% vacuum areas. These absolute vacuum areas present both sides of this thin, one galaxy thick, USS also ensures that the universe is and remains an absolutely 100% closed system for all forms of radiation with mass, matter and energy! Such 100% vacuum cannot be scientifically researched.

18) Only after many (10 – 15) billions of years of expanding as mono-spherical layers without atoms, gravity and without slowing down this expansion speed of  $0.7c$ , so much space has arisen within and between those mono-layers p/e that each proton can capture its own shell electron.

Then the simplest hydrogen atom is formed which directly transfers into  $H_2$  molecules. Both H/  $H_2$  immediately generate their own 9 – 11 forms/ components of gravitation and components of gravitational energy as well their own 9 – 11 physically and chemically forces/ 9 – 11 components in their bindings.

19) Over the course of billions of years, the universe keeps the shape of a thin, perfectly round, universe-spherical-shell/ USS/ balloon, which now consists of many billions of galaxies and millions of clusters of galaxies.

Only between those galaxies in this thin universe spherical-shell extremely low concentrations of hydrogen (H/ $H_2$ ) and of helium (He) inside galaxies are present, necessary as ether for the conduction/guiding of neutrinos, photons and cosmic particle radiation.

An absolute 100% vacuum always applies both inside and outside that thin universe-spherical-shell/ balloon of galaxies. Photons, neutrino's and cosmic radiation cannot penetrate these 100% vacuum areas.

20) Those atoms/molecules H,  $H_2$  and He are very locally surrounded by electric and magnetic micro-fields. These micro-fields provide a conduction medium/ ether along which all forms of electromagnetic (EM) radiation and all forms of cosmic particle radiation with their own electric/ magnetic micro-fields can move and be transported.

Due to the necessity of conduction via such ether of H,  $H_2$  and He, the speed of movement of all forms of EM and of cosmic rays is not infinite, but limited to a maximum the speed of light  $c$  and approximately 300,000 km/sec.

21) Gravitation (and time/ universe-clock-time/ UCT) however moves without particles and thus without the need for an ether. Therefore gravity (and time) aren't speed limited and thus spreads all sided with infinitely great speed through the entire universe.

Gravity/ gravitation and time are the only physical phenomena that spread through those absolutely 100% vacuum spaces! Result: via gravitation and time all atoms in the universe are in real time contact with each other.

(Shock waves of gravitational energy as measured by **LIGO and Virgo** only travel through such an ether provided by H,  $H_2$  and He atoms. Therefore these contraire gravitation such shockwaves of gravitational energy are limited to the speed of light  $c$ .



22) An absolute 100% vacuum applies both inside and outside that thin universe-spherical shell of galaxies and in between the H, H<sub>2</sub> and He gases present in that universe-spherical-shell!

In those absolute 100% vacuum regions, any kind of conductive medium/ether surrounding atoms such as H, H<sub>2</sub> and He for neutrino's, photons and cosmic radiation is missing.

That absolute vacuum therefore blocks 100% the spread of all forms of EM radiation from light and infrared (neutrinos, photons) and also blocks the spread of all forms of cosmic particle radiation into or out of that thin universe-spherical-shell as well closed system for those shock waves of gravitational energy.

23) Both absolute vacuum spaces ensure that a universe / the universe-spherical-shell continuously functions as a 100% closed system for mass, matter and energy.

24) Because of the need for an ether (H, H<sub>2</sub>, He) all forms of EM radiation and cosmic rays and that of gravitational energy can only move through that thin, perfectly curved and at most only one galaxy thick universe-sphere-shell.

These forms of radiation can only travel within that thin perfectly curved universe-spherical-shell and through the extremely low concentrations of H, H<sub>2</sub> and He gas present only there! **Figures 36p, 36q and 36r document G8/ G12.**

25) Gravity is generated from atoms in celestial bodies and black holes and in that thin spherical shell shaped ether of H, H<sub>2</sub> and He. Gravitation results in a universe in the form of a thin universe-spherical-shell/ USS with billions of galaxies as a 100% closed system for:

- a) all ordinary and black hole atoms,
- b) all forms of EM radiation and **LIGO** shockwaves of gravitational energy,
- c) for all forms of cosmic particle radiation/ rays with mass, matter and energy!

26) After all, the oldest observed galaxies are already 13.6 billion years old. Galaxies take about 15 to 20 billion years to form. Within a relatively short period of 13.8 – 13.6 billion years and the speed of light *c*, the Big Bang theory could impossible have allowed the universe to reach its current dimensions and the many billions of galaxies being formed and developed, nor their positions reached in that gigantic balloon-shaped universe.

27) The universe must therefore be much older and larger and therefore have started much earlier than 13.8 billion years ago. After the formation of H/ H<sub>2</sub>, the formation of galaxies takes at least another 15 – 20 billion years. (That already 10 - 15 billion period of expansion without atoms and without gravitation / gravitational energy takes a lot of time!).

28) Science 2023 has overcome that problem of expansion through inflation and expansion at the start of the universe >> speed of light *c*. However, such a start and first expansion of the universe >> speed of light *c* is fundamentally contrary to **Einstein's** theory of relativity, which (rightly) limits the speed of photons, protons/electrons and cosmic rays to a maximum of the speed of light *c*. In reality, that expansion speed of the universe can be maximum of 0.7 the speed of light *c*. **Document G6 & Figures.**

29) Within Science 2023 discussion about the start of the universe is missing:  
a) a start with only protons/ electrons arranged as mono-layers of protons/ electrons and thus a start of the universe without atoms without gravity, gravitational energy and temperature,  
b) a start with an expansion rate lower than the speed of light  $c$  (maximum  $0.7 c$ ) and therefore expansion without inflation with the consequence,  
c) a universe that started much earlier than the current assumed 13.8 billion years ago.

30) According to the author, the start of the universe already took place about 50 – 65 billion years ago via a super-cold Little Bang (0 Kelvin) in which a super-large black hole lost all speed and thus all of its gravitation and became unstable crossing the Critical blackhole gravity/ Cribgra of about  $8x$  the gravity of our sun/ 8 SGE's.  
(The now visible nebula are the result colliding blackholes crossing Cribhgra about 8 SGE.

31) At that Little Bang (and nebula explosions) only protons/ electrons are released as mono-layers p/e that expanded with a maximum of  $0.7$  light speed  $c$ . No formation of new protons/ electrons.  
All protons and electrons come from the previous cycle of the universe. **Document G6 & Figures 1 – 30 G8.**

32) That super cold Little Bang theory takes place with no creation of matter from energy! So not a Big Bang based on  $E = mc^2$ . This cold Little Bang theory fundamentally deviates from the current in Science widely accepted Big Bang theory.  
All protons/ electrons released during that Little Bang were already present/ formed in the preceding universe & its cycle.

33) Only after approximately 10 - 15 billion expansion did these protons/electrons proceed to the formation of hydrogen and thus the start of gravity, gravitational energy (= dark energy), entropy and the generation of the other physical and chemical forces of the H atom/  $H_2$  molecule. **Document F1d & Figures.**

34) Only about 15 - 20 billion years after the formation of hydrogen and only after cooling of that hydrogen gas to liquid hydrogen gravitation overcomes succeeding the mutual electrically repulsion / entropy present between hydrogen molecules.

35) The universe acts like a 100% closed system. So cooling is only possible in case such photons are reconstructed as matter; protons and electrons. Such reconstruction is an extremely slow process. It takes no less than 13.8 billion years for the present photons and neutrinos of light and infrared being transformed into new electrons, protons, new hydrogen & stars cooling down the universe-spherical-shell. **Document F1c & Figures.**

36) Only after such extremely long period that hydrogen gas cools down to liquid hydrogen at about 20 Kelvin and then hydrogen loses its entropy. It is only from that cold moment on that gravity overcomes entropy and super large spheres of pure hydrogen can be formed surrounded by 0 – 6 smaller and cooler rotating spheres/ Roemers of pure hydrogen.

37) Those large central spheres of pure hydrogen get bigger and hotter due to gravity until nuclear fusion starts only in those central spheres. That nuclear fusion marks the superhot Big Bangs and start of the galaxies. Nuclear fusion does not occur in the smaller and somewhat cooler side spheres/ Roemers with hydrogen.

38) Those Big Bangs of the largest central H<sub>2</sub> spheres result in the start of all spiral (S), barred spiral (BS) and elliptical (E)/M galaxies. All galaxies start through their own superhot Big Bang. Those Big Bangs coincide with the almost simultaneous formation of their central black holes, which already took place about 20-25 billion years ago. **Phase 16 Document G7 & Figures 42 – 54 G8.**

39) Those Big Bangs of galaxies are no longer observable because within a period of 13.8 billion years all EM radiation and cosmic rays emitted by those Big Bangs/ start galaxies and all information linked to them have via  $E = mc^2$  are reconstructed back into new protons & electrons and new hydrogen. That hydrogen ultimately results in the formation of new stars. Therefore these Big Bangs themselves aren't observable via EM radiation and by cosmic rays!

40) Those Big Bangs, about 20 – 25 billion years ago, can only be made 'visible' by a hundred - thousand times improved **LIGO** gravitation techniques. With such drastically improved **LIGO** techniques 'viewing depth' observation limits of the universe / universe-sphere-shell can be reached up to a maximum of about 30 - 35 billion (light)years ago. This extends to the period prior to the start/ Big Bangs of the galaxies.

41) An even further 'extension' of the depth of view/ observation horizons to both the past as well the future of our universe is only possible through **mathematical modelling** and thus quantifying the universe & its cycle of currently 29 steps! **Documents G14 & G15.**

## 1.12 TYPES OF GALAXIES:

All galaxies started their own superhot Big Bang with the simultaneous formation of their rapidly rotating central black hole. Described in **step 16 cycle of the universe, document G7 & figures 42 – 54 G8.**

Hubble and NASA have further classified the galaxies by shape, size and structure. Based on this main classification, the author now distinguishes the following types of galaxies:

1) **Spiral (S) galaxies** with billions of stars and at the centre one, rapidly rotating, central black hole accompanied by 3 - 6 curled and curved spiral arms with stars/planets,

2) **Barred spiral (BS) galaxies** with billions of stars with one, rapidly rotating, central black hole in a barred structure with only two curled and curved spiral arms around it,

3) **Elliptical (E)/M galaxies** also with billions of stars/planets around one huge and rapidly rotating central black hole. These (E)/M galaxies have no spiral arms,

**4) Lenticular galaxies** as a merger of two primary (S), (BS) and (E)/M galaxies with billions of stars around one central black hole or around two not yet merged central black holes with partly recognizable remnants of spiral arms,

**5) Irregular galaxies** as a merger of several (S), (BS) and (E)/M spiral galaxies also around one central black hole or several still rotating around each other and yet to merge central black holes. The spiral arms fade further and further,

**6) Much smaller sub-galaxies/clouds of stars without their own central black hole.** Such small parallel galaxies are present/expected around all existing primary (S), (BS) and (E)/M galaxies. The stars in those small sub-galaxies are built with recycling products from the central black holes of those galaxies.

The almost simultaneous start/ Big Bangs of all (S), (BS) and (E)/M galaxies already took place about 20 – 25 billion years ago. The start/ Big Bangs of galaxies was also preceded by an extremely long run-up period of approximately 25 to 30 billion years in total. The start of our universe took place approximately 50 – 65 billion years ago instead of 13.8 billion years ago.

#### **\*2) OVERVIEW CYCLE OF THE UNIVERSE IN 29 STEPS:**

The cycle of the universe currently arrived the beginning of step 23 of 29 which the universe goes through as a fixed, overall energy-neutral, cycle of 29 steps. This fixed, endlessly ongoing, cycle of the universe has been described in **document G7 & figures G8** [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) and consists of:

a) 16 short, ephemeral, moments (duration in terms of seconds, hours) with each cycle of exact simultaneous chemical and nuclear physical changes across the whole universe the very same moment. Those ephemeral moments are almost always separated by

b) 13 intermediate long lasting with each cycle the same physical periods, each taking millions to many billions/ trillions of years and universe wide the very same period.

c) The interdependence in those 29 steps is such that the universe at step 29 of each cycle ends up exactly at step 1 of this cycle. The end of each cycle automatically leads to the start of the next, very same, cycle of the universe.

d) This universe cycle of 29 steps overall is energy-neutral and repeats itself endlessly like a perpetual motion machine.

Those 29 steps of the universe cycle can only be qualitatively detailed and fleshed out through mathematical modelling. **Documents G14 and G15.** Through try and error and with **AI techniques**, the preconditions of such an endlessly repeating universe can be filled in quantitatively and with that its entire cycle of currently 29 steps can be filled in.

Only through that mathematical modelling and **AI** can this endlessly repeating and always the same, overall energy-neutral cycle be fully mapped, both qualitatively and quantitatively. Only via modelling and **AI** can all macro parameters of the universe & cycle be quantified.

That mathematical modelling of the universe & cycle is possible because the universe:

a) Forms a 100% closed system for mass, matter and energy from which no neutrino, photon, quark, subatomic particle, proton, electron and atom can escape,

b) Within that closed system, the universe always goes through the very same cycle of currently 29 steps and those 29 steps overall are completed energy-neutral,

c) Those 29 steps all consist of more or less simple, completely predictable, physical, chemical or nuclear physical change(s).

The universe goes through the same (currently 29) steps over and over again in exactly the same time/universe clock time/UCT, down to the second and thus second precise.

**Document G6 steps 1 – 4 : describes** the super cold (0 Kelvin) start of each cycle with only mono-spherical layers of loose protons and electrons without gravity.

**Step 5:** deals with the period of approximately 10 – 15 billion years with expansion at approximately 0.7 speed of light  $c$  without atoms, gravity and therefore also without gravitational energy.

**Step 6:** describes the formation of only hydrogen/  $H$ /  $H_2$  and thus the creation of gravitation/gravity energy, among other things.

After cooling of the formed pure hydrogen to below the condensation point of approximately 20 Kelvin, this 100% pure  $H_2$  loses its gas pressure and thus its entropy. Only then will gravity gain the upper hand at the expense of entropy.

Now gravitation over a period of many billions of years via collisions causes the formation of many billions of ever larger and increasingly hotter growing central spheres consisting of 100% pure hydrogen.

**Steps 7 – 15:** describe the preliminary stages of the formation of huge increasingly hotter central hydrogen spheres that may or may not be surrounded by 0 – 6 smaller and less hot side spheres/ Roemers that also consist of 100% pure hydrogen. Those Roemers are located in a flat rotation/ accretion disk perpendicular to the axis of rotation of the central sphere.

Via gravity and collisions with smaller spheres of hydrogen, both the central hydrogen spheres and the 0 – 6 subsidiary spheres/Roemers continue to increase in size, gravity and temperature until spontaneous nuclear fusion starts only in that central  $H_2$  sphere.

**Step 16:** That nuclear fusion goes completely out of control and immediately ends in a giant super hotly wound Big Bang.

The higher atoms formed in the centre of the fusion immediately transform under extreme pressure into black hole atoms and the almost simultaneous formation of their central black

holes in the centre of this spiral (S), barred spiral (BS) and elliptical (E) /M galaxies. **Figures 42 – 54 document G8.**

**Steps 17- 22:** Describe the billions of years needed for the formation of galaxies after their Big Bangs.

**Step 23:** Current step with the formation of a central cluster of black holes and the end of the expansion of the universe-sphere-shell/ USS.

**Steps 24 – 29:** Contract universe, formation Little Bang black hole and start next cycle universe.

**\*3) TARGET / GOAL DOCUMENT:**

A crucial moment in the universe cycle is the start of the galaxies with their Big Bangs and simultaneous formation of their central black hole. **Document G18** aims to provide a logical explanation for the development and macrostructure of these three main types of primary (S), (BS and (E)/M galaxies prior to the start/ Big Bangs of these galaxies.

**\*4) PREHISTORY THESE BIG BANGS/ STARTS OF THE GALAXIES:**

All billions of galaxies started more or less simultaneously 20 – 25 billion years ago, each with their own superhot Big Bang as a result of spontaneous nuclear fusion in the that moment formed super large and hot spheres of pure hydrogen.

Due to the lack of higher atoms, those Big Bangs of galaxies immediately got completely out of hands. In all cases, all Big Bangs coincided directly with the formation of a rapidly rotating black hole in the galaxy's fusion region and centre and an enormous amount of photons/ neutrino's.

The differences in shape, size and type of galaxies is determined by the number (from 0 – 6 ) of side spheres also pure hydrogen/ Roemers that have been pre-formed around those central hydrogen spheres during the many billions of years leading up to those Big Bangs.

**Steps 7 - 15 document G7 cycle of the universe:** describe the period and steps prior to these Big Bangs and start of the galaxies. In that preceding period of approximately 10 - 15 billion years, via gravity almost infinite small hydrogen spheres are formed within the universe-sphere-shell. Due gravity and collisions this results in many billions of super-large spheres of 100% pure hydrogen with 0 - 6 smaller and cooler secondary spheres rotating around it. Roemers of also 100% pure liquid/ gaseous hydrogen.

Through collisions with smaller H<sub>2</sub> spheres, these central spheres become larger and hotter over time, until within a short period of a few thousand years nuclear fusion spontaneously starts in all billions of overheated central hydrogen spheres, which nuclear fusion immediately gets completely out of hand.

During those Big Bangs of galaxies, nuclear fusion does not occur in those smaller, less hot satellites/Roemers.

Those billions of central hydrogen spheres with 0 – 6 secondary spheres/ Roemers rotating around them all together contain the same amount of hydrogen. Only the distribution of hydrogen in that central sphere and over those secondary spheres/ Roemers differs. After those Big Bangs, these differences result in the formation of three basic shapes of galaxies as: a) **spiral (S) galaxies**, b) **barred spiral (BS) galaxies** or c) **elliptical (E)/M galaxies**.

Those nuclear fusion/Big Bangs in all central spheres culminate in the formation of all elements of the periodic table and also culminate directly in the formation of one rapidly rotating central black hole of the galaxy. **Step/ phase 16 document G7 & figures 42 - 54 document G8.**

#### **4.2 FORMATION OF SPIRAL ARMS:**

That nuclear fusion in those central spheres consists of fusion shell-electrons to the atom cores. So that fusion is also accompanied by a tremendous loss of gravity there. As a result of which these secondary spheres/ Roemers are thrown away and evaporate in the meantime due the heat of these Big Bangs. All Roemers are thus transformed into elongated spiral arms. All originally present Roemers transform into one spiral arm.

The cooling down of these spiral arms takes billions by reforming these neutrinos, photons and cosmic rays into new protons and electrons which takes 13.8 billions of years! In those spiral arms in the meantime due gravity a whole chain of many billions of large planets are formed, surrounded by a series of 1 – 10 rotating smaller planets. **Figures 54a -62 G8.**

Around the largest of these, with the most gravitation, by far the most during the Big Bangs and evaporation Roemers hydrogen gas accumulates. After cooling that hydrogen gas to liquid hydrogen, this results in the formation of billions of stars, all surrounded by at least 1 – approximately 10 planets.

All solar systems with one star or around binary stars in the centre of the system, surrounded by a series of smaller planets built from dust from higher elements ejected during those Big Bangs. **Steps 19 – 22 document G7 & figures 54a – 62 G8.**

However, all (S), (BS) and (E)/M galaxies start from roughly the same amount of hydrogen! The number of previously formed secondary spheres/ Roemers determines whether this results in the formation of:

- 1) the spiral (S) galaxies + 3 - 6 side spheres/ Roemers/ spiral arms,
- 2) the barred-spiral galaxies (BS) with only 2 cosmic spheres/ Roemers/spiral arms and
- 3) the elliptical (E)/M galaxies without side spheres/ spiral arms.

#### **4.3 MAJOR DIFFERENCES IN GALAXY SHAPE AND SIZE OF CENTRAL BLACK HOLES:**

The more Roemers, the greater the number of spiral arms and the smaller the central black hole formed during these Big Bangs (S)/ (BS) and (E)/M galaxies.

The central black holes of spiral (S) galaxies have a gravitational equivalent of several million solar gravitational equivalents (SGE) while those of the much more compact elliptical (E)/M

galaxies result in central black holes with several billions of solar gravitational equivalents (SGE's). The barred spiral (BS) galaxies lie in between. Significant differences!

The other galaxies currently observed are already merging two or more galaxies and thus secondary/tertiary galaxies. Then there are no longer primary (S), (BS) or (E)/M galaxies!

The differences in the shapes of galaxies and their central black holes can easily be explained by their history and development. The start of these (S) and (E)/M galaxies are now described in **step 16 document G7 and figures 42 – 54 G8**. (The bar spiral (BS) galaxies with only two spiral arms are still missing there)

### **Step 16 document G7 (universe cycle) and figures 42 – 54 document G8**

[www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu) only describe the start and development of: a) elliptical (E)/M galaxies and b) start of spiral (S) galaxies from four Roemers and one central H<sub>2</sub> sphere. With those Big Bangs, each side sphere/ Roemer develops into one spiral arm.

Barred Spiral (BS) galaxies are formed when only two Roemers formed prior to the Big Bang.

## **4.4 BASIC GALAXY TYPES:**

### **4.4.1 SPIRAL(S) GALAXY:**

These primary galaxies evolve during their history around one gigantic centrally located rotating sphere of pure 100% hydrogen. Around that central H<sub>2</sub> sphere rotate and develop in a globally flat rotation plane around it separately 3 – 6 or more smaller and cooler hydrogen spheres / Roemers. All Big Bangs of galaxies and formation of their central black holes took place 20 - 25 billion years ago

During those Big Bangs nuclear fusion only occurs in those much hotter and larger central H<sub>2</sub> spheres without nuclear fusion in those smaller and cooler sub-spheres/ Roemers. During those Big Bangs, those side-spheres/ Roemers are knocked apart by the radiation pressure and heat as a long string of gases, whereby each side-sphere/Roemer transforms into one elongated and curved spiral arm that is mixed with atomic dust from higher elements emitted during those Big Bangs.

In those primary galaxies that have not yet merged with each other, the number of spiral arms is equal to the number of previously formed satellite spheres/Roemers.

### **4.4.2 BARRED-SPIRAL (BS) GALAXY:**

In this type of primary galaxies, only two side spheres/Roemers of pure hydrogen/H<sub>2</sub> develop prior to their Big Bangs. After the Big Bang of these galaxies, the gravitation of both Roemers pulls the gas expelled in the accretion disk and higher atoms back together into a rotating barred structure with the central black hole of the galaxy in the centre. The two Roemers, broken and evaporated after the Big Bang, each result in one, clearly visible, curved/curled spiral arm around it. That rotation was already present before the Big Bang happened.



#### **4.4.3 ELLIPTICAL (E)/M GALAXY:**

These are primary galaxies with no prior development of satellite spheres/ Roemers. During this Big Bang, all hydrogen is concentrated in one sphere. During the Big Bangs of this type of galaxies, enormous central black holes are formed that, due to their enormous rotational speed, generate about a hundred to a thousand times more gravity/weight than the much smaller, less rapidly rotating, central black holes of the spiral (S) and barred spiral (BS). ) galaxies. Because of their enormous gravitational pull, elliptical galaxies are very compact and develop without co-globules/Roemers and without spiral arms.

All (S), (BS) and (E)/M galaxies contain the same number of protons/ electrons, but due to differences in speed also generate considerable differences in the amount of gravitation generated. Enormously more gravitation is generated from their fast and rapidly rotating central black holes in particular. In galaxies physically much more gravity / weight is generated than can be deduced on the basis of **Einstein** only mathematically explanation for gravity.

These rapidly rotating central black holes of (E)/M galaxies generate up to about a thousand times more gravitation compared these central black holes of spiral (S) galaxies which results in a lot of 'dark' matter.

Due to this enormous gravitation of their central blackhole matter remains much more tightly bound around the centre these (E)/M galaxies. During these Big Bangs much more higher elements already disappear into that central black hole. Because of that enormous gravitation, the ejected dust/ atomic debris is removed much faster from the environment these galaxies relative the (S) and (BS) spiral galaxies. In these galaxies local dust clouds obscure the view on the centres of those galaxies and within their spiral arms.

#### **4.4.4 LENTICULAR GALAXY:**

All (S), (BS) and (E)/M galaxies have already started about 20 – 25 billion years ago, within a period of several thousand years, so relatively almost at the same time with their own Big Bang. All galaxies attract each other through their same components of gravitation.

This results in mutual collisions between those three basic primary forms of galaxies and results in the formation of *secondary galaxies* that are still reasonably recognizable as a fusion product.

These are merged / lenticular galaxies around two possibly still orbiting rapidly rotating central black holes. In 20 to 30 billion years, all primary galaxies will have merged into these types of lenticular galaxies through mutual collisions.

#### **4.4.5 IRREGULAR GALAXY:**

Collisions between multiple and different types of galaxies result in irregular galaxies grouped around a common group of central black holes that eventually merge into one central black hole.

Over the next 350 – 450 billion years, in all 4 – 20 million uniform clusters, each now filled with 4 – 6 thousand or more galaxies, all now present galaxies will merge via collisions into one central cluster black hole / CCBH.

During that period, all primary galaxies will default to progressively larger and more massive irregular galaxies and disappear into their ever-expanding central black hole of the cluster.

#### 4.4.6 FORMATION OF STARS & SMALLER PARALLEL GALAXIES:

Around all current galaxies, a number of smaller groups of side stars are found without the presence of a central black hole. Those parallel galaxies are located at distances of some - several light years around those much larger existing galaxies. Gravitationally these stars arrange themselves as *tertiary parallel galaxies* that are to be expected present around all existing galaxies.

Those groups of stars in such parallel galaxies are exceptional because they are formed by recycling waste products released from atoms falling into a black hole and transforming such normal atoms into black hole atoms. **Document F1e & figures**. During that transformation of ordinary atoms starting from Be to black hole atom starting Be, a lot of electromagnetic (EM) radiation and cosmic particle radiation are released as subatomic radiation/ garbage .

Black holes only accept:

- a) normal atoms starting from Be and refuse accepting H, H<sub>2</sub>, He and Li,
- b) only if those atoms are made up of an equal number of protons and electrons.  
(1n = 1p + 1e).

Black holes only accept atoms from Be without attached photons. Fitting normal atoms into collapsed black hole atoms and thus suitable for capturing in a black hole thus results in a large amount of subatomic debris (neutrinos, photons, cosmic particle/ radiation, protons and electrons etc.). Those mismatched parts of the atom aren't accepted by the black hole and ejected from the black hole as pure 'garbage' and subatomic radiation.

All rejected H, H<sub>2</sub>, He and Li atoms generate their own gravitation and stay bound by gravity as a thin extremely compact layer directly around the black hole itself.. This thin surrounding layer of H, H<sub>2</sub>, He gases and Li obscures the black hole from direct view

All subatomic fragments of atoms don't generate any gravitation and are rejected as well and are emitted as photons, quarks, loose protons, electrons, neutrons and as smaller subatomic particles. **Figures 65a – 65i document G8** describe that thin layer of H, H<sub>2</sub>, He and Li present around all central black holes of galaxies.

Via that thin layer/ether of almost solid H, H<sub>2</sub>, He and Li, all other residual particles and waste products are discharged to one of the two vortexes present and discharged via those rapidly rotating vortexes towards far outside the black hole. (**This isn't Hawking radiation!**)

Within both rapidly rotating vortexes, those rejected subatomic 'atomic garbage/ waste products' are completely reformed and reconstructed into protons/ electrons and hydrogen over a period of thousands to possibly many millions of years.

This new hydrogen ultimately results in the formation of new stars. Within all galaxies and around all blackholes such formation of protons, electrons, hydrogen, new stars and parallel galaxies takes place.

#### **4.5 REFORMING NEUTRINOS, PHOTONS INTO PROTONS AND ELECTRONS TAKES 13.8 BILLION YEARS:**

The photons and neutrinos of light (the electron) and those of infrared (the proton) released during the Big Bangs of galaxies cannot escape towards outside the universe-sphere-shell and there present 100% vacuum.

All neutrino's and photons of light and infrared therefore continues to move completely within that universe-sphere-shell. Over a period of 13.8 billion years, all neutrinos and photons in the universe/ the universe-sphere-shell are converted back into matter as protons/ electrons, hydrogen and eventually new stars. Such creation of new stars takes place all over the universe.

**Document F1c & figures and figures 65a – 65i G8** describes that process of reforming neutrinos and photons into protons, electrons and hydrogen as well as the formation of groups of stars from reformed hydrogen.

#### **4.6 CYCLE UNIVERSE NOW ARRIVED IN BEGINNING STEP 23 OF 29:**

We currently arrived in the beginning step 23 of this cycle of the universe cycle. Phase 23 will take the next 350 - 450 billion of years to complete. During step/ phase 23, by nuclear fusion in stars all hydrogen is converted into elements  $\geq$  Be suitable for inclusion in a black hole.

All EM radiation and cosmic forms of radiation will be converted into protons, electrons, hydrogen and by fusion in stars made suitable for absorption in a black hole. A very long process of approximately 350 – 450 billion years in total.

In that long period, all galaxies within those 4 – 20 million identical clusters merge into just one central cluster black hole (CCBH). This period gravity parallel slows down extremely slowly the expansion of the universe/ universe-sphere-shell/ USS towards zero.

In that period, all remaining expansion velocity/energy is 100% converted into rotational velocity/ energy. All expansion energy is almost completely converted and concentrated in this rotational velocity of those about 4 – 20 CCBH's.

#### **4.7 END OF EXPANSION UNIVERSE SHELL:**

This process of CCBH's formation runs parallel in all 4 – 20 million clusters present within the universe-sphere-shell/ USS each filled with 4 – 6 thousand or more galaxies. At the end of the expansion, all galaxies and all EM radiation and cosmic rays have also completely disappeared and converted into black hole atoms.

The universe then only consists of a thin perfectly round universe-sphere-shell containing approximately 4 – 20 million almost identical CCBH's, all built up with 4 – 6 thousand or more galaxies and all having the same quantity, matter, rotational energy, rotational gravity and gravitation energy relative to center C of the universe. In short, a uniform universe-sphere-shell of millions of rapidly rotating and stationary CCBH's.

Mathematical modeling of the universe & cycle offers possibilities for further qualitative and quantitative interpretation of that process.

#### **4.8 START SHRINKING UNIVERSE SPHERE:**

Then gravitation allows that always perfectly round universe-sphere-shell of 4 – 20 million CCBH's to return simultaneously and coordinated by gravitation towards the center C of the universe/ the universe-sphere-shell. The universe then shrinks again towards center C as a perfectly round spherical shell of 4 – 20 million CCBH's with a maximum speed about 100 - 150 km/sec.

Under the central direction of gravity, trillion years later, all 4 – 20 million CCBH's arrive simultaneously at center C of the universe where all speed and gravity disappears and the next cold Little Bang occurs as end this cycle and the start of the next exactly the same cycle of (currently) 29 steps.

#### **\*5) DISCUSSION:**

The start and formation of primary galaxies in the form of this spiral (S). barred spiral (BS) and elliptical (E)/M galaxies and their central black holes are well described through a 25-30 billion year run-up phase consisting of 15 steps. This period of 25 – 30 billion years prior to the start/ Big Bangs of galaxies comprises 15 of the 29 steps of the entire universe cycle.

**Document G7.**

#### **5.1 VISIBILITY DEPTH / EVENT HORIZON OF THE UNIVERSE VIA EM RADIATION IS LIMITED TO A MAXIMUM OF 13.8 BILLION (LIGHT) YEARS:**

Those Big Bangs of the currently observable primary galaxies already took place 20 - 25 billion years ago and can no longer be made observable via light/ photons. Within a period of 13.8 billion years, all neutrinos, photons and all cosmic rays are recombined and transformed back into protons, electrons, hydrogen and transformed into new stars. All older information in the universe has been completely converted into new matter and thus disappeared!

**Document F1c & figures** outlines that within 13.8 billion years forms recycle from neutrinos and photons into protons, electrons and hydrogen.

That recycling of photons/ neutrinos/ EM information together with subatomic waste and energy into matter takes place everywhere around blackholes in the universe! All photon related information these Big Bangs / start of galaxies is 100% disappeared.

#### **5.2 'DEPTH OF VISION' OF THE UNIVERSE CAN BE EXPANDED TO APPROXIMATELY 30 – 35 BILLION (LIGHT) YEARS VIA LIGO GRAVITATION TECHNIQUES:**

Those starts/ Big Bangs of galaxies from 20 to 25 billion years ago can be made 'visible' in case of drastic improvements to **LIGO** gravitation techniques. With an improvement by a factor of approximately one hundred to one thousand times, **LIGO** techniques can ultimately be used to look back in time up to approximately 30 to 35 billion (light) years ago. So looking back to the period *prior* to the Big Bangs and the start of the galaxies and thus drastically shifting and expanding the event horizon.

### **5.3 'VISIBILITY' TOWARDS THE START UNIVERSE ONLY POSSIBLE THROUGH MATHEMATIC MODELING THE CYCLE OF THE UNIVERSE:**

The super-cold Little Bang, **document G6 & figures 1 – 30 G8**, and the period up to the formation of hydrogen cannot be obtained in any way from a technical point of view, let alone made measurable.

That super cold start / Little Bang itself and without temperature already took place about 50 - 65 billion years ago and, just like the first 15 - 20 billion years of the universe cycle, cannot be technically made 'visible' in any way.

Making the universe & cycle 'visible' and comprehensible is only possible through mathematical modeling of the entire cycle of the universe. **Described in documents G14 & G15.**

**Document G7** describes the entire cycle of the universe consisting of 29 steps, qualitatively supplemented with estimates. Only through such modeling and with the application of AI techniques that universe & fixed cycle of the universe can be fully filled in qualitatively and quantitatively:

- a) macro for the universe as a whole closed system as well
- b) micro for any randomly selected moment during this cycle of the universe taking a period of approximately 35 – 50 trillion ( $10^{12}$ ) years.

### **5.4 WHO TAKES UP MATHEMATIC MODELING THE UNIVERSE & ITS CYCLE?**

The universe cycle described above rubs on a number of points with **Einstein's** current, widely accepted scientific theory of relativity. The universe & its cycle can only be described through **mathematical modeling and AI techniques** and the entire cycle of 29 steps can be quantified.

Only through modeling can the current problems concerning 'dark' matter' and 'dark' energy be filled in and solved both qualitatively and quantitatively.

Who or which scientific institute will be the first to cross this threshold?

#### **\*6) SUMMARY:**

1) The Big Bangs (**step 16 of 29 G7**) and the start of the galaxies took place approximately 20 - 25 billion years ago and cannot be visualized. At those Big Bangs of galaxies, three *primary* basic types can be formed: a) spiral (S) galaxies, b) barred spiral (BS) galaxies and c) elliptical (E)/M galaxies.

Those Big Bangs of galaxies only took place about 25 – 30 billion years after the super cold start (0 Kelvin) Little Bang and about 20 – 25 billion years ago.

2) The universe already started about 50 – 65 billion years ago with a super cold Little Bang (0 Kelvin) from the Little Bang black hole/LBZG formed at the end of the preceding universe that became unstable due to the complete loss of velocity and with it the loss of all gravity.

3) That Little Bang black hole/ LBZG thereby passed the Critical black hole gravitation (Cribhgra) equivalent about 8 times the gravitation of the sun/ 8 SGE and then disintegrated into unstable black hole atoms that further disintegrated into an equivalent number of ordinary protons and electrons. 100% ordinary matter without any formation of antimatter.

4) The released same number of protons/ electrons arrange themselves in mono-layers p/e and then expand uniformly on all sides equally as spherical mono-layers p/e with approximately 0.7 of the speed of light c. Peeling off the Little Bang black hole layer by layer in monolayers p/e takes about a thousand – fifteen hundred years!

5) Only after approximately 10 – 15 billion years of expansion of the universe by 0.7c in the form of a thin perfectly round balloon-shaped mono-layers p/e, so much space is created between and inside those mono-layers of protons and electrons that all protons throughout the universe. simultaneously capturing their own 'shell' electron. That thin balloon-shaped universe has then reached most of its expansion with a radius of about 10 – 12 billion light years.

6) That moment only the simplest hydrogen atom is formed and immediately after that the simplest hydrogen molecule has been formed as a gas. That hydrogen gas exhibits entropy as well as generates gravity and gravitational energy. A tremendous amount of gravitational energy relative centre C universe is added to the cycle of the universe free of charge! (= dark energy)

7) Only after billions of years (takes 13.8 billion years) cooling of that hydrogen gas to the condensation point of hydrogen at approximately 20 Kelvin does that hydrogen gas loses its gas pressure/ entropy and eventually gravitation remains and wins.

8) Through the attraction of gravity, first small and later through collisions increasingly larger spheres of 100% pure liquid hydrogen are created that eventually merge into billions of gigantic hydrogen spheres, all of which result in a Big Bang and the start of its own galaxy 25 to 30 billion years later.

9) Those super big spheres of 100% pure hydrogen are getting bigger and hotter due to gravity and collisions. Gravitation holds these now gaseous hydrogen spheres together.

10) Those red-hot central hydrogen spheres are surrounded by 0 – 6 smaller and cooler hydrogen spheres/ Roemers. Each side sphere results in the formation of one spiral arm after the Big Bang.

11) Those Big Bangs effects in 3 primary basic shapes of galaxies.

- a) spiral (S) galaxies with 3 – 6 or more curled spiral arms,
- b) barred spiral (BS) galaxies with only 2 curly spiral arms and
- c) elliptical (E)/M galaxies without spiral arms.

12) The Big Bangs of these primary galaxies start with nuclear fusion in that large and hotter central sphere of pure 100% hydrogen. In the 0 – 6 smaller hydrogen spheres/Roemers formed prior to this Big Bang, rotating in a flat plane and cooler, nuclear fusion does not yet occur. At those Big Bangs, each side sphere/Roemer results in one spiral arm mixed with higher element stardust from those Big Bangs.

13) The three different *primary* forms of spiral (S), barred spiral (BS) and elliptical (E)/M galaxies are well explained by their history and the number of co-spheres/Roemers formed prior to their Big Bangs.

Through mathematically modeling, these three *primary* basic forms of galaxies can be filled in quantitatively.

14) Collisions between *primary* galaxies results in *secondary lenticular* and in the formation of *irregular galaxies*.

15) The *tertiary* small parallel galaxies are formed from subatomic particles that are released when ordinary matter/atoms (from beryllium) are absorbed into a black hole and transformed into black hole atoms from Be. (**Document F1e & Figures**). This creates a large amount of subatomic residue/waste in the form of protons, events, neutrinos and photons that are discharged to both vortexes of the blackhole.

16) In the vortexes of black holes, those subatomic particles are reformed again within millions of years and recycled into their original protons, electrons, (**document F1c & figures**), hydrogen resulting in the formation of new stars. These new stars together form *tertiary* parallel galaxies. (**Figures 65a – 65i document G8**)

17) The universe forms a 100% closed system for mass, matter and energy and within that closed system endlessly goes through the same, overall energy-neutral, cycle of 29 steps, where step 29 again forms step 1 of the next cycle. (**Document G7 & Figures**)

#### **\*7) CONCLUSIONS:**

1) The Big Bangs of galaxies occurred approximately 20 – 25 billion years ago and resulted in 3 primary basic shapes of galaxies.

- a) spiral (S) galaxies with 3 – 6 or more curled spiral arms,
- b) barred spiral (BS) galaxies with only 2 curly spiral arms and
- c) elliptical (E)/M galaxies without spiral arms.

(**Phase/step 16 document G7 and figures 42 – 54 G8**)

2) That universe as closed system goes through a fixed, energy-neutral, cycle of currently 29 fully predictable physical, chemical and nuclear physical steps. Step 29 equal step 1 of the cycle. In principle, these different steps can be modeled mathematically, and thus the cycle of the universe as a whole can be modeled.

3) The universe always goes through the same fixed series of 28 each other linked chain of mathematically models which ends the very same it started. This results in filling in the entire universe cycle of 29 steps, both qualitatively and quantitatively. **Documents G14 & G15.**

4) Only through mathematical modeling and **AI** techniques it is possible to give a clear qualitative and quantitative interpretation of the approximately 10 - 15 billion year initial phase and 15 - 20 billion year prehistory of these 3 primary basic types of galaxies with their Big Bangs with the formation of their rapidly rotating central black holes and their 0 – 6 or more side spheres/Roemers/spiral arms.

5) That mathematical modeling and quantification of the cycle of the universe is the only method suitable for qualitatively and quantitatively filling in the macro parameters on which the universe & cycle are based and for determining the moments/ periods at which those 29 steps in the universe cycle took place as well as the duration of each step during that cycle.

6) Only through modeling and the use of **AI** can the problems concerning 'dark' matter and 'dark' energy be qualitatively reduced and can they be filled in quantitatively.

**A.P.B. Uiterwijk Winkel MSc**

Zwijndrecht, the Netherlands, 22 August 2023

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**ATTACHMENT 1:  
SKETCH FORMATION OF THE UNIVERSE/ UNIVERSE CYCLE TO THE  
PRESENT:**

**-a) Universe forms a 100% closed system for mass, matter and energy. Within that closed system, the universe endlessly goes through the same overall energy neutral cycle:** Contrary to what is currently generally thought, the universe is not an open system but a 100% closed system for all forms of: mass, matter, energy EM radiation from neutrinos and photons and all forms of subatomic cosmic particle radiation. The universe as a whole satisfies the second law of thermodynamics.

Within that closed system, the universe endlessly goes through the same energy-neutral cycle of 29 steps. We are currently in the infinite version of this universe +1.

**Documents G6, G7, G8 and G12 [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu) .**

**-b) Current universe is much older 13.8 billion years:**

The current cycle of the universe did not only start about 13.8 billion years ago, but started much earlier, about 50 to 65 billion years ago, with a super cold (0 Kelvin) Little Bang and resulted in the release of an equivalent number of protons/electrons and an expansion rate of approximately 0.7 c.

Those protons and electrons were already present in the previous universe in the form of a super large black hole filled with black hole atoms from Be. **Document F1e.**

After that super cold Little Bang, the universe expands about 0.7 the speed of light c; thus without inflation! That currently thin perfectly round spherical shell-shaped universe is therefore much older. To achieve the current shape of a thin spherical shell with a radius of approximately 10 to 12 billion light years without inflation (> light speed c), the current universe/universe spherical shell must already have started approximately 50 to 65 billion years ago. That happened from a super-sized Little Bang black hole (LBBH) filled with black hole atoms starting from Be.

**Document F1e & figures** describes the formation of such black hole atoms from Be under high pressure and via formation of Van der Waals/ London bindings/ bonds via the collapse of the electron shells/cloud towards close to their atomic nucleus.

**-c) Start universe from super Little Bang black hole that lost all speed and thus gravitation:**

At the end of the previous universe, gravitation had collected all the mass, matter and energy of the universe in that LBBH in the form of black hole atoms from Be. Not a single free atom, molecule, photon, neutrino was to be seen in the universe.

At the end of the expansion and step 23 universe cycle, the universe was absolutely cold and dark and was only generating gravity from those 4 to 20 million gigantic central cluster black holes (CCBH's) each containing about 4 to 6 thousand or more galaxies.

Gravitation causes those 4 to 20 million CCBH's to return to center C. This is at the expense of their rotational speed/energy and the associated gravitation. During that retreat, all 4 to 20 million CCBH's are completely stripped of the rotational speed and thus their rotation gravity. At the end of that retreat, all CCBH's merge into one Little Bang black hole/LBBH.

In the final phase of formation (**end phase 28 universe cycle document G7**) that LBBH lost more and more speed and thus more and more gravitation approaching zero.

**-d) Little Bang black hole filled with black hole atoms from Be:**

That LBBH consisted entirely of black hole atoms from Be. Such black hole atoms repel each other electrically as in an ordinary gas. Only gravity can suppress this mutual repulsion.

**-e) Critical Black Hole Gravity/ Cribjgra:**

In black holes there is therefore a gigantic internal gas pressure, which makes black holes very unstable. Within a black hole, those repelling black hole atoms can only be held together if the total gravity of the black hole is higher than the Critical black hole gravity/ Cribgra. The Critical black hole gravitation (Cribgra) and critical lower limit of gravitation corresponds to at least approximately 5 to 10 times the amount of gravitation generated by the sun. The critical gravitational limit/ Cribhgra is probably about 8x the gravitational force of the sun.

**-f) Little Bang when falling below Cribhgra this Little Bang black hole disintegrates into an equal number of protons/ electrons:**

Due to the further loss of velocity and thus gravity in the final phase of the formation of LBBH, the LBBH became increasingly unstable as well. The moment falling below Cribhgra (about 8 x gravitation of the sun) that LBBH disintegrates into:

a) unstable black hole atoms that

b) further disintegrate into only an equivalent number of protons and electrons

**Document G6 & figures 1 - 30 document G8. [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu) .**

**-g) Order protons/electrons in mono-layers p/e and expansion 0.7 speed of light c:**

After the Little Bang, which had been completed at 0 Kelvin, the protons and electrons arranged themselves into monolayers of protons/electrons via their elementary characteristics of charge and magnetic spin.

The first approximately 1,000 - 1,500 years that LBBH is peeled off as a perfect spherical shape of mono-layers of protons/ electrons that expand with 0.7 c until that LBBH has reached a radius of approximately 700 - 1,050 light years. Only after complete peeling off does that sphere of the universe expand in the form of an ever-increasing 100% vacuum inner space with an ever-thinning universe-sphere-shell consisting of mono-layers of protons/electrons.

**-h) First expansion for about 10 to 15 billion years without atoms and therefore without gravity/ and without gravitational energy in the universe:**

Due to the internal pressure, that system of monolayers of protons/electrons expanded during a period of about 10 to 15 billion years at about 0.7 of the speed of light c. During that entire period, atoms are absent. In that entire first period gravitation/gravity energy as well as the other atomic related physical and chemical forces/bonds completely absent in the universe. (After the start /Little Bang, the shell electrons moved with about 0.7 c around center C. Coupled with an expansion velocity of 0.7 c, the maximum speed of electrons is equivalent net to the speed of light c)

**-i) After 10 to 15 billion years expansion formation H atom with gravity and gravitational energy:**

After approximately 10 -15 billion years of expansion without atoms (and without gravitation/gravity energy and temperature), so much space has arisen between: a) those mono-layers p/e mutually and b) inside those mono-layers between the protons or electrons. The speed of the electrons has now decreased from 0.7 c approximately 1,600 km/s.

Due to the expansion, the space between protons and electrons gradually increases and that of the electrons decreases to such an extent that at a certain moment all protons throughout the universe simultaneously capture their own shell electron. At the same time, only the simplest hydrogen atom/ H isotope is formed throughout the universe with the associated gravitational, physical and chemical forces.

At the same time, that H atom is converted into H<sub>2</sub>. This releases binding heat. Only then will the universe emit infrared radiation for the first time.

**-j) With the formation of H atom/ H<sub>2</sub> molecule, universe/universe-sphere-shell undergoes drastic changes:**

With that hydrogen atom/molecule, in addition to temperature, gravity and gravitational energy also return to the universe. An enormous amount of gravitational energy relative to center C is added to the universe. That gravitational energy is currently missing in energy balances of the universe.

**-k) Universe closed system; cooling H<sub>2</sub> is very slow and takes billions of years:**

After billions of years, the hydrogen gas has cooled below the condensation point of hydrogen, causing the gas pressure to drop and hydrogen to become liquid. Then gravity takes over. 15 to 20 billion years later, trillions of large liquid and increasingly hotter large pure rotating hydrogen spheres were formed under the influence of gravity.

**-l) After about 25 to 30 billion years nuclear fusion starts in H<sub>2</sub> spheres / galaxies start and formation of their central black hole:**

In these gravitationally formed and increasingly hotter almost identical spheres of pure hydrogen spontaneously starts nuclear fusion. Due to the energy that was then released, all super H<sub>2</sub> spheres exploded spontaneously about 20 to 25 billion years ago. This resulted in many billions of elliptical (E)/M galaxies and the spiral (S) galaxies. **Phase 16 document G7 (universe cycle) and figures 42 to 54 document G8.**

For energetic reasons, nuclear fusion from hydrogen can only form atoms in the universe in accordance with the elements of the periodic table known on Earth.

**-m) Nuclear fusion of hydrogen results in the same periodic table of elements throughout the universe:**

The structure of atoms and that periodic table is the same throughout the universe and with it the physical chemical forces of the atom generated by such atoms. Elaborated **in document F1d & figures.**

**-n) Continued Big Bangs galaxies to the present:**

**Steps 17 to present start step 23 document G7** with the universe cycle describe how the current universe came about since those Big Bangs of:

a) the spiral (S) galaxies (with relatively small central black holes equivalent in gravity to millions of stars like the Sun) and

b) the smaller elliptical (in fact, perfectly round galaxies with much more massive central black holes equivalent to the gravitational pull of trillions of stars from the sun)

**o) From today beginning of step 23 to end of cycle step 29:**

Step 23 describes the 350 to 450 billion year period in which the expansion of the universe comes to a standstill.

**p) Returning all matter and energy towards center C universe:**

Steps 24 to 29 describe the subsequent contraction of the universe-sphere-shell due gravitation. At the end of the contraction resulting in the formation of the same LBBH that culminates in the same Little Bang that started this cycle. So our universe acts like an endlessly repeating perpetuum mobile

This universe cycle of 29 steps has only one direction of settlement and is completed energy-neutral overall. The driving force pushes the universe through that cycle all the time. Because this cycle of the universe overall is energy neutral, this universe cycle can repeat itself endlessly. We live in the infinite cycle of the universe +1.