

STRUCTURE & NUCLEAR PROCESSES CENTRAL BLACK HOLES OF GALAXIES AND THEIR JETS/ VORTICES:

*0) SUMMARY: THE 6 LAYER STRUCTURE CENTRAL BLACK HOLES OF GALAXIES/ CBHG's;

-) In **Science 2025** blackholes eats *all atoms as well all kinds* of electromagnetic radiation. Even photons of light and infrared cannot escape the gigantic gravity emitted by blackholes. Now scientifically blackholes are presented as 100% *unsaturable* celestial bodies/ monsters. Anyhow still unknown is the structure of blackholes what exactly happens to matter/ atoms, subatomic particles and electromagnetic forms of radiation that end up falling into a black hole and ending there in the center present singularity.

-) In **document G22 English & figures designed by Adarshi Yadava** www.uitervijkwinkel.eu the author **A.P.B. Uiterwijk Winkel (MSc)** presents a coherent vision around the origin and construction of superfast rotating central black holes of galaxies (CBHG) as a coherent construction of **6 Layers I – VI & figures 1a, 1b, 1c document G22 figures**. Such central blackholes of galaxies may manifest as well as magnetars and pulsars.

-) Completely different vision on blackholes:

Document G22 & figures G22 offers a completely different detailed vision on the structure of blackholes in **6 Layers** and the physically and nuclear processes in each of **Layer I – VI**.

-) **Layer I:** The ultra-compact, *fast rotating* ($<$ speed of light c), discus shaped core of the blackhole filled with collapsed normal atoms starting element **Be** with electron shells very close their atom nuclei becoming extremely small, super massive, black hole atoms starting **Be** with the structure of an atom. Collapsing electron shells towards their nucleus is just possible atoms with at least 2 pairs of electrons (**Be**) forming **Van der Waals/ London bindings**.

The transfer ordinary atoms $\rightarrow$ blackhole atoms is described in **document F1e & figures**.

Due their enormous angular speed blackhole atoms generate an *increased amount* of gravity compared normal atoms. (This increased gravity is the cause of dark matter!)

Within these compressed electron-shells the nucleus such blackhole atoms can hardly vibrate. Such extremely compressed blackhole atoms are extremely dense and cold; just standard about 2.7 Kelvin!

Atoms/ isotopes of H, H₂, He, Li, deuterium and tritium misses these two required pairs of shell-electrons and thus cannot collapse into blackhole atoms and thus cannot enter a blackhole just like all smaller subatomic particles without gravity!

-) Layer I / CBHG and blackholes only emit physically gravity:

These super massive centres of such central blackholes just emit *physically gravity*; the only form of radiation without any form of particles, mass, electrically charge, magnetic spin, energy and without waves. **Documents E3, E3-1, E3-2 and F1e**. For that reason *physically*

gravity is the only form of ‘radiation’ that can escape the centre of the blackhole. Without mass *physically gravity* spreads with infinite speed ($\gg c$).

All emissions of *particle based* EM, subatomic and cosmic radiation out of **Layer I** is absolute impossible. Inside **Layer I** present instable blackhole cannot stabilise by emitting single protons, electrons, neutrons and photons,

-) **Layer II:** Nuclear stabilising of present instable blackhole atoms present in **Layer I** by nuclear fission is exclusively possible in the most outer, *mono-blackhole atom*, thick/ thin **Layer II** of the blackhole by emitting protons, electrons, double photons, photons, double neutrinos, neutrino’s and neutrons ($1n = 1p + 1e$) and may be quarks,

-) **Layer III:** A direct the blackhole surrounding, co-rotating, layer of the blackhole filled by not accepted atoms and forms of particle based forms of radiation. These not accepted atoms consists out of by gravity 100% fixated normal atoms/ isotopes **H, H₂, He, Li, deuterium and tritium**.

Missing such 2 pairs of electrons their electron shells cannot collapse towards their atom cores becoming blackhole atoms. **Document F1e & figures**. Thus these atoms cannot collapse and are refused entering the black hole. Due the local enormous gravity and own gravity generated by these atoms/ isotopes **H, H₂, He, Li, deuterium and tritium** themselves these lightest atoms are fixed and cannot escape. These lightest atoms form an extremely dense surrounding layer around the blackhole.

Around all **central blackholes of galaxies/ CBHG’s** that layer is so extremely dense and hot this results in nuclear fusion around their super cold centres of galaxies **as Layer IV!**

-) **Layer IV:** Inside **Layer III** and connected **Layers I/ II** a ring zone is present with extremely high pressure and high temperature of millions degrees enough resulting in nuclear fusion elements **H, H₂, He, Li, deuterium and tritium** towards elements $\geq \text{Be}$. These atoms $\geq \text{Be}$ directly collapse into blackhole atoms and are accepted by the blackhole! This nuclear fusion is visible!

All subatomic garbage as results of fusion processes and collapsing of atoms into blackhole atoms remains inside **Layer III** of mainly elements **H, H₂, He, Li** and transported by this rotating **Layer III** towards both jets/ vertices (**Layer V**).

-) **Layer V:** The two fast co-rotating vortices/ jets connected to the rotation axe of the black hole used for the removal out of the blackhole of all *unaccepted subatomic particles/* radiation and subatomic ‘waste’ like **protons, electrons, H plasma, neutrons, (double) neutrino’s, (double) photons etc.** These **pedicular vortices/ jets may be about five hundreds of lightyears long and end in a kind of cloud/ Fermi-clouds and the formation of new stars and small parallel galaxies.**

Within those hot plasma fast rotating jets/ vortexes within a period of many thousands – millions of years all subatomic kinds‘ of *nuclear ‘waste’* are removed by a 100% reconstructed into new matter. All garbage is reconstructed in just protons, electrons, H plasma and, cooling down in time into fluid hydrogen. This finally results in the forming of new stars and of small parallel galaxies/ clouds of (many) thousands of new stars at distances hundreds - thousands of lightyears away from the galaxy,

-) **Layer VI:** The accretion disk co-rotating around the black hole with matter of torn apart stars and planets due gravity falling into the black hole. Near the blackhole itself stars are separated into **atoms starting Be** accepted by the blackhole as blackhole atoms and not

collapsed elements/ isotopes **H, H₂, He, Li, deuterium and tritium** refused by the blackhole as well all particle and waves based forms of radiation. These refused atoms/ elements **H, H₂, He, Li, deuterium and tritium** are added to **Layers III/ IV**.

All particle related forms of *radiation* are discharged either by a) a direct emission towards the universe-spherical-shell/ USS or b) by transport inside **Layer III** and there present atoms towards both jets/ vortices **Layer V** for reconstruction into new protons/ electrons and hydrogen.

-) In document G22 & figures these central black holes of galaxies are built up in 6 layers. Overall these 6 layers are presented in figures 2a & 2b.

These successive **6 layers** in black holes/ magnetars/ pulsars are presented with their: 1) gravity, 2) electromagnetic (EM) radiation, 3) subatomic radiation, 4) radiation of single protons, electrons and 5) cosmic particle radiation connected to the matter and blackhole matter present in the layer. The different forms of radiation are shown as coloured arrows.

-) Adarshi Yadava has elaborated these different layers present in these central black holes of galaxies/ CBHG as beautiful 3D Max **figures: document G22 figures 1 – 7. These figures are described in chapter 6 document G22.**

0.1) SCALE MODEL CENTRAL BLACKHOLES & CONSTRUCTION LAYERS I – VI:

These (central) black holes of galaxies can be presented in the form of a *6 layered transparent* rotating scale model seize about *<1 m – about 5 meters* as 6 layers of lights presenting the form, movements, structure and physical & nuclear processes inside these gigantic fast rotating blackholes.

Such scale model presents black holes as a fountain of moving lights representing the different processes and emitted forms of radiation inside and outside these central blackholes of galaxies.

With a press on a button each of these 6 Layers and connected processes can be enlightened and projected on a screen together with an additional explanation!

***1) INTRODUCTION:**

In the centres of all galaxies an enormous blackhole is present generating millions – billions *sun/solar gravity equivalents/ SGE's*. Around these central blackholes of the galaxy (**CBHG**) billions of stars are rotating kept together by the enormous gravity of the CBHG and their own physically gravity. **Documents E3, E3-1, E3-2 and F1e.**

This enormous gravitation of these central blackholes and *infinite speed* of physically gravity keep these billions of stars real time together and almost 'infinite' caught inside their galaxy.

In **Science 2025** is unknown the origin of these **central blackholes galaxies/ CBHG's**.

Formed:

- a) step by step by absorbing millions – billions of stars or
- b) formed by one gigantic nuclear explosions out of gigantic hydrogen spheres during just one **Big Bang** as start of each galaxy.

Such *Big Bangs of galaxies* occurred some 30 – 35 billion of years ago **step 16 cycle of the universe, document G7 and figures 42 – 54 document G8** and resulted in the start of three main types of galaxies; **document G18:**

- a) *elliptically (EM) galaxies without spiral arms & CBHG's billions of sun-gravity-equivalents/ SGE's,*
- b) *bared-spiral (BS) galaxies with just two large spiral arms & CBHG's tens of millions SGE's or*
- c) *spiral (S) galaxies with 3 – 10 smaller spiral arms & CBHG's just millions of SGE's.*

These galaxies all characterised by a gigantic central blackhole present in the centre of these galaxies. To visualize the structure and functioning of such central black holes, a number of questions need to be answered:

***2) QUESTIONS:**

-) What happens to matter/ atoms falling into a black hole?
-) Does the composition and shape of atoms falling into black holes change and how?
-) Reasons the surroundings areas of blackholes and their jets/ vortices are visible?

-) Do black holes accept all forms of matter/ atoms and all forms of radiation or are black holes very selective in absorption of atoms/ particle based forms of radiation?
-) Which forms of atoms and forms of radiation do these central black holes accept and Which kinds of matter/ energy blackholes don't accept and thus refuse?
-) Does that unaccepted matter/ atoms and forms of radiation stick around the black hole or is such matter/ atoms and radiation discharged to both jets/ vortices,
-) Are all refused forms of radiation removed/ transported away by both jets/ vortices?

-) Under extremely pressure the electron shells/ clouds of normal atoms collapse towards very close their atom cores becoming super small & super massive blackhole atoms?
-) Do such blackhole atoms repulse each other electrically like in a gas. Are blackholes in fact extremely instable celestial bodies just kept together by their enormous gravity?
-) Which physical and chemical characteristics do such black hole matter/ atoms retain? Which properties disappear?

-) Those compressed atoms inside black holes further collapse due the present gigantic gravity further collapse into a *physical singularity* or is such singularity only mathematically possible and singularities aren't possible physically?
-) Is the possible structure of a blackhole inside the Schwarzschild radius a) an empty sphere or discus completely filled with such collapsed extremely small and super massive blackhole matter/ atoms?
-) Is such further collapsing of blackholes into a singularity only mathematically possible and such further collapsing into a *singularity* physically absolutely impossible?

-) What is the structure of black holes as *Layers I – V* and the nuclear, physically processes inside these different layers of the black hole?
-) What are the functions and physically and nuclear processes inside these jets/ vortices of blackholes?
-) Which forms of matter/ radiation are removed via these rapidly rotating vortices?
-) Which physically, chemically and possibly nuclear processes occur inside these jets/ vortices?
-) Is within these jets/ vortices a build-up of new matter possible out of these EM and subatomic particles as nuclear garbage of processes in and around the black hole?
-) How much time would such reconstruction of radiation into matter (as protons/ electrons and hydrogen) require?
-) Which forms of matter and celestial bodies are generated at the ends of these vortices?
-) And what happens to that formed end products of matter?

-) Which nuclear processes happens inside the surrounding co-rotating accretion disk, Layer VI?

The answers to the questions occur as explanations of the various figures elaborated in document G22 figures English and figures 65a – 65m document G8, Explanation these Layers I – VI is presented in chapter 5 document G22.

***3) GOALS DOCUMENT G22:**

-) **Goal 1: Document G22 & figures** aims describing and visualizing the structure and operation of Central Black Holes of Galaxies step by step and layer by layer as clearly as possible for **Science, students, pupils, and public.**

-) **Goal 2: Answering many pressing questions about the origin central black holes galaxies and structure in 6 layers in order forming a complete image as possible.**

Which processes are possible and what is happening:

- a) Inside such **Central Black Holes of Galaxies/ CBHG's** due their enormous angular speed of tens to hundreds rotations per second (but in all cases the angular speed $<$ the speed of light c), resulting in a standard *discus shape* of all central blackholes of galaxies as well smaller blackholes,
- b) What occurs in the direct vicinity of CBHG's,
- c) Which processes occur inside these hundreds of lightyears long jets/ vortexes of CBHG's,
- d) Are CBHG's immensely small singularities or are they relative small, super massive, fast rotating celestial bodies with a radius of tens to many thousands of kilometers that rotate extremely fast around their main axe at a speed of tens of percents the speed of light c ,
- e) The minimum seize/ gravity of such central blackholes galaxies/ SMBH's?
- f) What is the composition of the blackhole matter present inside such CBHG's,
- g) How these CBHG's are built up layer by layer, what physical, chemical and nuclear processes occur inside each layer within these CBHG's,
- h) What kind of matter/ atoms/ radiation central black holes galaxies/ CBHG's do accept and what black holes don't accept and why. In short, what happens in the direct vicinity of such a black hole?
- i) What is the internal pressure & temperature inside **Layers I / II** of blackholes and pressure & temperature in **Layers III / IV** as well the inside construction of these vortices **Layer V** as well inside their accretion disk **Layer VI**?
- j) Can black holes 'evaporate' as **Stephan Hawking** stated? Or are such black holes too cold for any form of evaporation? Is such evaporation a misunderstanding blackholes?

--> **Goal 3: To transform the 3D max figures and structure of this CBHG's into a transparent scale model ($< 1 - \text{about } 5 \text{ m}$) layer by layer. Showing by an press on a button the inner structure and processes taking place in these Layers I - VI.**

Usable for education and 'public days' of universities, scientific institutes / conferences.

-) **Goal 4: Presenting blackholes as transparent models seize about $< 1 - 4/5$ meters presenting these different processes inside blackholes which can be presented on 'public days' ESA/ NASA, CERN, universities and scientific institutes.**

Through such **VI – I layered** structure, these **CBHG's** can be displayed in the form of a rotating scale transparent rotating model with moving different colored lights which represents the physically & nuclear processes going on inside and around these blackholes. Presenting the structure of 'black holes' and their inside ongoing processes more understandable for the 'general' public getting a better understanding of blackholes and their function in the universe as well their essential role during the endlessly ongoing cycle of the universe.

3.1 OBJECTIVE OF MAKING A SCALE MODEL CENTRAL BLACKHOLES GALAXIES/ CBHG's:

-) Document G22 can be presented as a 3D transparent scale model of these central black hole galaxies. In such scale model, (size about $< 1\text{ m} - 4 / 5\text{ m}$):

- a) the different layers of such central black holes of galaxies can be highlighted layer by layer via a light projection linked to those **Layers I – VI** in the model as well
- b) projected on a screen with an additional description and explanation in more detail.

The 6 layered structure of black holes & accretion disk presented in **G22 & figures English** can be displayed very well in the form of a *slowly rotating* scientific model and as a 6 layered representation in the form of a fountain with different colored and moving lights. This 6 layered structure is used to display and describe as precisely as possible and to make clear what is happening in each of these 6 layers around the black hole. Which physically & nuclear processes take place within each layer of the black hole.

Initially as a representation in glass/ transparent plastic and with only solids in combination with moving lights. In the long term, designs based on combinations of colored moving liquids and lights are possible.

***4) THE UNIVERSE ACTS AS 100% CLOSED SYSTEM FOR**

- 1) ALL ATOMS & BASED ON MASS, MATTER, KINETIC ENERGY AND**
- 2) ALL PARTICLE & WAVES BASED FORMS OF RADIATION;**
- 3) WITHIN THAT 100% CLOSED SYSTEM THE UNIVERSE ENDLESSLY PASSING THE VERY SAME CYCLE OF NOW 29 STEPS:**

-) The universe acts as a 100% closed system for mass, matter and kinetic energy:

Due gravity our universe/ USS is a 100% closed system for all normal and all blackhole atoms. Physically gravity (**E3, E3-1, E3-2 and F1e**) keeps all types of atoms in the universe together and jailed inside the *thin* perfectly round & balloon shaped *universe-spherical-shell/ USS*.

All *particles and wave based forms of radiation* are surrounded by own micro field of electric charge and magnetic spin. All particle based forms of radiation can just move in the universe by the electrically and magnetic micro-fields surrounded of atoms and there present protons and electrons.

Particle based forms of radiation cannot pass and enter the *immense 100% absolute vacuum areas* in the universe where such electrically and magnetic micro-fields as 'ether' are missing completely 100%. All particle & waves based forms of radiation are able just traveling through the thin universe-spherical shell/ USS of galaxies and in between present layer with micro-fields by hydrogen is possible.

Due mainly hydrogen, present in the USS our universe acts as 100% closed system as well for all particles and all *waves based* forms of radiation!

-) Within that closed system endlessly passing the very same overall energy neutral cycle:

Within that 100% closed system for atoms & radiation our universe endlessly passes the very same overall energy-neutral cycle of now 29 steps. The end of each cycle in **step 29** equals **step 1** of the next very same cycle of the universe. **Document G7 & figures G8.**

-) Universe end and starts every cycle with a super cold Little Bang (0 Kelvin):

The universe ends every cycle as one gigantic **Little Bang black hole/ LBBH** which loses all speed and thus all of its gravitation becoming instable. At *0 Kelvin* this **LBBH** is falling apart into an equal number of protons/ electrons forming mono-layers of protons/ electrons expanding as balloon of mono-layers *p/ e about 0.7 the speed of light c* and thus without any inflation for a period of about 10 – 15 billions of years before enough space is created between the protons and electrons starting simple hydrogen atoms/ molecules can be formed. **Document G6 & figures 1 – 30 G8.**

-) Our universe is much older 13.8 billion years:

Our universe started the now ongoing (infinite^{th!}) cycle already about some 75 – 85 billion of years ago expanding as mono-layers of protons/ electrons. Our universe started as an all sided equally *0.7 c* expanding balloon shaped *universe-spherical-shell/ USS* of mono-layers of protons and electrons without atoms and thus without temperature and without gravity! Thus a super cold (equivalent 0 Kelvin) start of our universe without any inflation, without atoms and thus without any gravity/ gravitational energy, and without temperature during the first 10 – 15 billion years of its expansion!

4.1 SUPER COLD START (0 KELVIN) ENDING & START OF THE UNIVERSE:

Document G6 & figures 1 – 30 document G8 describes this super cold end and strictly organised ending & start of each cycle of the universe. That **super cold Little Bang** (0 Kelvin) marked both the end of the previous cycle of the universe as well the start of the current, exactly very same, never ending, overall energy-neutral, cycle of the universe in now 29 steps/ phases. **Documents G6, G7 & figures G8.**

During that previous cycle of the universe, physical gravity had gathered all mass, matter and energy into just one large **Little Bang black hole/ LBBH** with a radius of some millions of kilometres. At the end of the contraction and formation this **LBBH**, with all mass, matter, energy of the universe concentrated inside this **LBBH** it lost all of its speeds.

With that disappearance of all speeds this **LBBH** lost all of its **physical gravity** and became instable due the electrically repulsion of the inside present pressure of the blackhole atoms.

Document E3, E3-1 and E3-2 and document F1e & figures.

At 0 Kelvin this **LBBH** and there present instable blackhole atoms fell apart into an equivalent number of protons and electrons. These protons/ electrons due their electric charge and magnetic spin first arranging themselves into spherical mono-layers of protons/ electrons that expanded uniformly from the outside this former **LBBH** all sides the very same speed of about *0.7 the speed of light c* with respect to the **centre C** of this **LBBH** and centre of the universe. **Document G6 & figures 1- 30.**

Peeling that LBBH takes about one thousand – fifteen hundreds of years!

The current cycle of our universe started already *approximately 75 – 85 billions of years ago* and now has the shape of a thin, perfectly round, balloon. Nowadays this thin wall/ skin of this *universe balloon* is constructed by many billions of galaxies with only in between these galaxies present a thin layer filled with extremely low concentrations of 100% pure hydrogen. Inside as well outside this thin balloon of galaxies and hydrogen an absolute 100% vacuum is present. None particle and waves based forms of radiation can penetrate and pass these 100% vacuum areas of the universe. We observe the universe just through that thin layer of galaxies and in between present thin layer of hydrogen!!

4.2 JUST SOME 10 – 15 BILLIONS OF YEARS AFTER THE LITTLE BANG ONLY HYDROGEN WAS FORMED ; WITH THE H ATOM ATOMIC FORCES & GRAVITY AND GRAVITATIONAL ENERGY RE-ENTERED THE UNIVERSE:

-) Some 10 – 15 billion years after the super cold (0 kelvin) start of our universe (**document G6 & figures 1 – 30 document G8**) www.uitervijkwinkel.eu . Cooling that hot hydrogen inside that closed system towards the point of condensation hydrogen *by reconstruction photons of light/ infrared* → *electrons/ protons and hydrogen* takes about 13.8 billions of years! Further cooling down hydrogen towards the point of condensation (about 20 K) takes another 6 – 8 billions of years before gas pressure and entropy in the present hydrogen is disappeared!

The following about 6 – 10 billions of years due gravity of fluid hydrogen enormous central hotter and hotter spheres of 100% pure hydrogen were formed surrounded by 0 – 10 smaller and less hotter **secondary pure H₂ spheres/ Roemers**. Described in **phases 1 – 15** cycle of the universe **document G7 and figures G8.**

Due collisions these in **phase 15** formed billions of enormous central hydrogen spheres became superhot, overheated and still 100% pure hydrogen however *billions of years* without **any neutrons, deuterium and tritium** and thus without any nuclear fusion processes! So the first 45 – 55 billion of years of the universe nuclear fusion of hydrogen couldn't occur and wasn't possible! That period just protons/ electrons were present and later just superhot hydrogen plasma.

The *absolute lack of neutrons, deuterium and tritium* delayed the start of nuclear fusion in this growing hydrogen spheres for many tens billions of years. By increase of pressure and temperature these billions of pure 100% pure *central hydrogen spheres* in time became, nuclear seen, in a nuclear super critical state!

Some 40 – 45 billion years after the Little Bang/ start of the cycle of the universe and some 30 – 40 billion of years ago finally *neutrons, deuterium and tritium* were formed which resulted only in all largest *central H₂ spheres* in a **superhot supernova/ Big Bang** as start of all galaxies.

4.3 THREE MAIN TYPES OF BIG BANGS/ GALAXIES POSSIBLE:

In a short period of about a few thousand - millions of years nuclear fusion started in all of these many billions of superhot *central hydrogen spheres*. All now in the universe present overheated galaxies started relative almost the same moment by forming *deuterium/ tritium* resulting in such **super-supernova explosions/ Big Bangs** and forming of their super large central blackhole as:

- 1) **elliptically galaxies** with a super central blackhole billions *sun gravity equivalents/ SGE's* and without *any secondary hydrogen spheres/ Roemers/ spiral arms*,
- 2) **bared spiral galaxies** with a super central blackhole *hundreds of millions SGE's* and just 2 *secondary hydrogen spheres/ Roemers/ 2 spiral arms* and
- 3) **spiral galaxies** with a central blackhole *some millions SGE's* and 3 or more *secondary hydrogen spheres/ Roemers/ 3 – 10 smaller spiral arms*. **Document G18.**

Phase 16 cycle of the universe, document G7, describes the Big Bangs of the galaxies some 30 – 40 billion years ago and illustrated by figures 42 – 54 document G8 and the start of these 1) elliptically (E/M) galaxies. 2) bared spiral (BS) galaxies and 3) spiral (S) galaxies.

These many billions of Big Bangs out of gigantic 100% pure hydrogen spheres marked the equal start of the galaxies at more or less the very same moment and same moment formation of their enormous *central black holes galaxies/ CBHG's* or SMBH's with an amount of gravity billions – millions of *sun -gravity-equivalents/ SGE's*.

These superhot **Big Bangs/** starts of the galaxies and their CBHG's already occurred some 30 - 40 billion of years ago. The now ongoing cycle of the universe had even started some 45 - 55 billion earlier (in total about 75 – 85 billion years ago) with a super cold (0 Kelvin) start/ **Little Bang** with an equivalent number of just protons and electrons.

4.4 INSIDE AND OUTSIDE THE USS AN ABSOLUTE 100% VACUUM IS PRESENT EM, SUBATOMIC AND COSMIC PARTICLE RADIATION CANNOT ENTER AND PENETRATE:

Inside as well outside this, one galaxy thin/ thick, balloon/ USS an absolute 100% vacuum is present. All particle based EM radiation such as protons, electrons, neutrons, neutrino's and photons of light & infrared, all subatomic radiation as well all cosmic particle radiation need an 'ether' of atoms and their surrounding electric and magnetic micro-fields making transport as particles and waves possible.

For that reason these forms of 'particle based' forms of radiation cannot penetrate these universe/ USS inside and outside surrounding 100% vacuum areas. All forms of 'particle based' radiation are *forced* staying inside the thin layer of the universe-spherical shell and there present super low concentration of hydrogen. All forms of particle and waves based forms of radiation are thus 100% forced staying and moving just inside the USS. These H atoms/ H₂ molecules in the USS are serving as an 'ether' for all kinds of electro-magnetic (EM), subatomic and cosmic particle & waves based forms of radiation.

4.4.1 HOW WE OBSERVE THE UNIVERSE:

We observe that *universe/ universe-spherical-shell/ USS* only via and through that *thin* perfectly curved round balloon wall of galaxies and in between these galaxies present thin layer/ 'ether' of hydrogen atoms/ molecules. **Figures 36p, 36q and 36r documents G8/ G12**

-) Our universe isn't observable via these absolute vacuum spaces present on either sides of the thin universe-spherical-shell/ USS of galaxies and there present hydrogen:

Photons, neutrinos and other forms of *particle & waves related* forms of radiation with their electric / magnetic micro-fields absolutely need that *hydrogen atoms/ molecules* and their surrounding electrical and magnetic micro-fields as a transport medium/ 'ether' making their own wave-movements possible.

All forms of electro-magnetic & waves radiation need such by protons/ electrons of atoms surrounded electrically and magnetically micro-fields as transport medium by which transport of their particles, with their own surrounding electrically and magnetically micro-fields is possible as waves. These forms of particle based forms of radiation cannot penetrate these absolute vacuum areas with totally 100% absence of atoms & these electrically and magnetically micro-fields.

So we cannot observe the universe through those USS surrounding immense absolute vacuum areas! **Figures 36p, 36q and 36r document G8/ G12** www.uitervijkwinkel.eu .Our universe/ USS/ balloon is exclusively observable via that thin by nature perfectly curved wall/ skin of the balloon with only there present super low concentrations/ 'ether' of hydrogen atoms in between these billions of galaxies. Just enough hydrogen atoms/ molecules present guiding all particle and waves based forms of radiation.

4.5 THE EVENT HORIZON INSIDE THE THIN USS SEEN FROM EARTH/ L2:

-) Just 13.8 billion lightyears of our universe/ this USS/ balloon of billions of galaxies is visible. The remaining immense areas of the universe / USS radius > 13.8 billion light years are completely out of sight:

Photons and all particle based forms of radiations require an 'ether' of hydrogen for moving and for their reconstruction into protons/ electrons. Inside that, one galaxy thick, perfectly

round USS within a period of 13.8 billion years all (double) neutrino's & (double) photons of light and infrared are reconstructed into just new protons, electrons and hydrogen atoms/ molecules. This reconstruction of all types of particle and waves based form of radiation towards hydrogen limits our event horizon inside the USS to a maximum radius of about 13.8 billion light years around Earth/ L2 point area.

Document F1c & figures show this reconstruction of neutrino's and photons of light and infrared into new protons/ electrons and finally into hydrogen H/ H₂.

Figures 36p, 36q and 36r G8/ G12 show how we observe the universe/ USS from planet Earth/ L2 location. These figures indicate most of the universe/ universe-spherical-shell/ USS isn't visible.

4.5.1: 'RADIATION' WITHOUT PARTICLES & WAVES DON'T NEED AN 'ETHER' AND CAN CROSS THESE ABSOLUTE VACUUM AREAS OF THE UNIVERSE:

-) Just physically form of gravity isn't based on particles and waves:

This *physically form* of gravity, **documents E3, E3-1, E3-2 and F1e** www.uitervijkwinkel.eu, is the only form of 'radiation' which isn't based on particles with mass, charge, spin and is isn't based on waves.

Thus such *physically gravity* (and time) are the only forms of 'radiation' without any need of an 'ether' of atoms for transport. This *physically gravity* is only generated by the shell-electrons of atoms due speed(s) of the atom in the universe. Because an 'ether' isn't required this *physically gravity* travels all sided at *infinite speed* ($\gg c$) through the whole universe and even leaves the universe the very same moment this form of gravity is generated by the shell-electrons of normal as well is generated by the shell-electrons of blackhole atoms.

4.6 PHYSICALLY GRAVITY & ETHER OF H ATOMS/ MOLECULES RESULTS IN A UNIVERSE AS 100 CLOSED SYSTEM FOR MASS, MATTER AND ENERGY:

-) Universe forms a 100% closed system for mass, matter, energy and radiation:

1) *Physically gravitation* emitted by the shell-electrons of atoms (**E3, E3-1, E3-2 and F1e**) ensures no atom nor any atom attached form of energy can escape towards inside or towards outside that thin universe-spherical-shell/ USS of galaxies and in between present layer of hydrogen. Gravity provides in a 100% closed system for all normal as well all blackhole atoms.

2) That *perfectly curved thin layer/ 'ether'/ balloon skin filled with mostly hydrogen atoms/ molecules* ensures as well no form of electromagnetic (EM) radiation, subatomic nor cosmic particle & waves based radiation and on their particles attached forms of kinetic energy can escape from that thin perfectly curved 'ether' of hydrogen gas only present in the USS.

All forms of particle and thus mass, charge, spin and energy and waves based forms of radiation are forced staying 100% inside the this thin USS and cannot escape out of that relative thin USS of hydrogen & galaxies towards the immense inside & outside the USS present absolute vacuum surrounding areas.

4.6.1 100% CLOSED UNIVERSE REPRESENTS 1TH LAW THERMODYNAMICS:

Together that *physically gravity* generated by the shell-electrons of atoms as well this '*ether of hydrogen*' results in the universe/ USS forming an absolute 100% closed system for all forms of atoms as well for all forms of radiation based on particles with mass, matter, energy which move by waves and limited by the speed of light c !

That 100% closed universe in fact represents the 1th Law of thermodynamics!

4.6.2 UNIVERSE/ USS IS ONLY OPEN FOR *PHYSICALLY GRAVITY & TIME/ UCT*:

Our universe/ USS is just open for *physically gravity* and time/ universe-clock-time/ UCT. The only forms of 'radiation' not based on particles, electrically and magnetically micro-fields, kinetic energy and waves! This *physically gravity* isn't limited by the speed of light c and spreads with infinite speed though the universe and leaves the universe the very same moment it's generated! In the universe all particles constantly have exactly the same linear ongoing and developing time/UCT. Differences in time/ UCT aren't possible!

4.7 FASTER AND FASTER EXPANDING UNIVERSE IS AN OPTICALLY ILLUSION:

-) Now just looking back in time through that thin USS/ thin curved layer of hydrogen we observe an all sided ever faster and faster expanding universe/ balloon of galaxies.

That observation is really correct! We observe that universe only through that thin curved skin of this balloon of galaxies and there present ultralow concentrations of super cold hydrogen gas.

In reality due gravity present in the USS of billions of galaxies the expansion speed of the universe/ USS isn't increasing but contrary expands slower and slower in time!

Due gravity the expansion of that USS however in reality is braked instead of increased!

Through that thin USS layer of galaxies and hydrogen in combination with a time delay we observe an ever faster expanding universe which contrary in reality due gravity is expanding slower and slower in time! **Figures 36p, 36q and 36r documents G8 / G12** show how we observe that universe/ USS from Earth/ L2 point as well the structure of *that scientific optically illusion misunderstanding!*

That everywhere visually faster and faster expanding universe towards the past is correct! Unfortunately due the *balloon shaped universe/ USS* and 'ether' discussion **Hubble** and **Science** up to 2025 drew the **wrong conclusion** out of this observation.

That in **Science** generally accepted ever faster and faster expanding universe is based on an **optical illusion** which is based on a wrong mis- interpretations of observations. **Document G12 & figures.**

-) **Due gravity the expansion of the USS will come to an end during the next 350 – 450 billions of years.** That moment due gravity all 4 – 20 million super clusters each containing about 4 – 6 thousand or more present galaxies will have been merged into a balloon radius about 10 – 12 billion of lightyears and about 4 – 20 million of very same **central cluster blackholes/ CCBH's.**

Due gravity all CCBH's returning back towards *centre C* of the universe and arrive there the very same moment. **Phases 25 – 29 document G7.**

4.8 SHORT OVERVIEW START CYCLE OF THE UNIVERSE UP TO THE BIG BANGS OF THE GALAXIES AND ORIGIN THEIR CENTRAL BLACK HOLES:

-) Within that 100% closed system the universe endlessly passes the very same cycle of now 29 steps. Overall this cycle of the is energy neutral:

That complete cycle of the universe (**G7 & G8**) currently consists out of 29 steps and takes a period of approximately 35 – 50 trillion (10^{12}) years/ cycle to complete. This universe cycle occurs within a universe/ a fairly thin universe-spherical-shell/ USS maximum radius about 12 billion lightyears/ LY's. That balloon forms a 100% closed system for all mass, matter, forms of energy and particle & wave based forms of radiation!

Within that closed system, every cycle of the universe in now 29 steps is completed overall energy-neutral and takes the same period of time/ universe-clock-time/ UCT; second precise! Now we are in the beginning **phase 23 of 29** while the *Big Bangs of the galaxies occurred in phase 16 of 29.*

Phase 23 will take another 350 – 450 billion of years and will end with the maximum expansion of the universe/ USS, radius about 12 billion of lightyears.

4.8.1 ORIGIN ENERGY ENDLESSLY PASSING THE SAME CYCLE OF 29 STEPS:

Such overall energy-neutral cycle of the universe is possible because after the start of the universe, during the first 10 - 15 billion of years only loose protons and electrons are present. That whole period atoms and thus physically gravitation and physically gravitational energy, temperature as well all atom related physically/ chemically forces are completely absent! During that first billions of years period the universe expands as a balloon all sided relative *center C universe* by $0.7c$ in an absolute vacuum environment/ space. Thus first 10 – 15 billion of years of expansion without any form of resistance/ braking and forming of gravitational energy!

-) Only after 10 - 15 billion years expansion $0.7c$ protons and electrons together form hydrogen atoms/ molecules; re-entrance of gravity & gravitational energy in the universe:

Documents E3, E3-1 and E3-2. That moment forming hydrogen atoms/ molecules physically gravitation and gravitational energy and other atom related physically & chemically forces of the H atom return into the universe/ USS.

With the formation of hydrogen atoms as well H_2 molecules & gravity, *completely free of charge* an enormous amount of gravitational energy is added to the cycle of the universe cycle:

- a) gravitational energy with respect to center C as well**
- b) gravitational energy within the USS !**

This free of charge added gravitational energy **phase 6** will be 100% used during **phases 27 & 28** for breaking the contraction speed of the USS into a constant speed of about a 100 – 150 km/sec. Thus no **Big Crunch** at the end of each cycle of the universe!

4.9 ENDLESSLY ONGOING OVERALL ENERGY-NEUTRAL CYCLE OF THE UNIVERSE (NOW 29 STEPS):

That completely *free of charge added gravitational energy* forms the driving force during the rest of the cycle of the universe. Every cycle of the universe that *free of charge added gravitational energy* is fully utilized during the contraction period.

Step 29 in the cycle of the universe is exactly the same as step 1 of this cycle. Documents G6, G7, G8 & G12.

Within that 100% closed system, the universe endlessly goes through the very same fixed cycle of now 29 steps, always in the same way, in the very same time period, second precise. One cycle of the universe takes estimated a period of approximately 35 – 50 trillion (10^{12}) years to complete in an overall energy-neutral way. This cycle of the universe can be **modelled mathematically** and thus quantified macro and micro. **Documents G14 / G15.**

4.9.1 EACH CYCLE STARTS WITH A SUPER COLD (0 K) LITTLE BANG AND AN EQUAL NUMBER OF PROTONS/ ELECTRONS:

-) The now ongoing cycle of the universe started already approximately 75 – 85 billion years ago may be even earlier:

The universe itself started approximately 45 – 55 billion years earlier these short period with the Big Bangs of the galaxies which occurred some 30 – 40 billions of years ago. This means that the start of the current cycle of our universe already took place already approximately 75 – 85 billion years ago with a super cold (0 K) completed **Little Bang. Document G6 & figures 1 – 30 document G8.**

-) Little Bang blackhole/ LBBH was constructed out of about 4 – 20 million same central cluster black holes/ CCBH's;

Prior to that Little Bang, coordinated by gravity about 4 – 20 million **Central Cluster Black Holes/ CCBH's** arrived the same moment/ universe-clock-time/ UCT at *center C* universe and merged into just one **Little Bang black hole/ LBBH.**

(Center C (0,0,0) is more or less located at the very same place. Each cycle Center C may change a little bit in terms of just meters)!

At the end of the previous cycle of the universe and end of the contraction this formed **LBBH** lost all of its speeds relative its starting **Center C** and lost all its physical forms and components of gravity/ gravitational energy!

In that **Little Bang black hole/ LBBH** all the mass, matter and kinetic energy of the universe collected by *physically gravity* was merged in that **LBBH**, radius many millions of kilometers. During that merging this **LBBH** lost all forms of speeds relative *center C* this **LBBH** lost all its physical forms of gravity as well and thus became instable! **Figures 1 – 30 G8.**

The inside that **LBBH** present blackhole atoms repulse each other electrically like in a normal gas. Due to that loss of speed and loss of its *physical gravity*, that **LBBH** became increasing instable. And completely instable the moment that **LBBH** crossing its **Critical Black Hole Gravity/ Cribhgra.**

Cribhgra of the LBBH and all types of blackholes is equivalent about 6 - 8 x the gravity of our sun/ 6 -8 SGE's/ sun-gravity-equivalents! (For that reason Center C need to be fixed more or less!)

Crossing Cribgra is essential for ending this cycle of the universe and very same moment start of the next very same, overall energy-neutral, cycle of the universe all over again.

At the end of the previous cycle, that **Little Bang black hole/ LBBH** fell apart into an equivalent number of **loose protons and electrons**. By their electric charge and magnetic spin those protons/ electrons arranged themselves in the very beginning of the next universe cycle into mono-layers of one proton and one electron thin/ thick. **Phases 1 – 4** cycle of the universe **documents G6/ G7 & figures 1 – 30 G8**.

-) Next universe starts with very same equivalent number of loose protons/ electrons without atoms and thus without temperature, gravity and without any gravitational energy:

From the outside of the former **Little Bang black hole** the next universe expanded with about 0.7 the speed of light c . This spherical expansion of the instable former **LBBH** into mono-layers of protons/ electrons takes about a *one thousand – fifteen hundreds of years*. Thereafter the universe/ USS expanded all sided the same as a perfectly round balloon about 0.7 c and radius about seven hundred – a thousand of light-years/ LY's.

With the disintegration of all black hole atoms all 'shell' electrons disappeared and with them all components of *physical gravity* and components of *gravitational energy*. **Documents E3, E3-1, E3-2 and F1e & figures show the origin and speed related structure of physically gravity of normal and blackhole atoms**. At the start of the next universe temperature and all atom related physical/ chemical forces disappeared as well.

4.9.2 AFTER 10 – 15 BILLION OF YEARS EXPANSION 0.7 c ONLY HYDROGEN/ H WAS FORMED:

-) After that Little Bang the universe/ USS expands without atoms and gravity completely unhindered and without any resistance for about 10 – 15 billion of years in an absolute 100% vacuum space:

Without atoms and therefore without gravity/ temperature, those rigidly expanding mono-layers of protons/ electrons could expand unhindered for many billions of years after that Little Bang in an absolute vacuum space with about 0.7 the speed of light c (thus without any inflation!) and in the form of a thin, perfectly round, universe spherical shell/ USS. In time becoming a thinner and thinner balloon of mono-layers p/ e ! **Document G6 & figures 1 – 30 document G8**.

This period all atom related forces like gravity, physically forces and chemically forces and their bindings as well gravitational energy were absent as well.

4.9.2.1 ONLY THE H ATOM RETURNS AS WELL GRAVITATION, PHYSICALLY AND CHEMICALLY FORCES OF THE SHELL-ELECTRONS H/ H₂:

-) After a period of expansion 10 – 15 billion years without atoms the present protons and electrons can only form the simplest hydrogen atom/ isotope:

Only after approximately 10 - 15 billion years of expansion, in the cold USS (0 Kelvin) so much space is created between those mono-layers of protons/ electrons as well space inside these mono-layers between those protons and electrons that universe wide in that *balloon* the very same moment all protons simultaneously capture their own 'shell' electron.

That moment only the simplest hydrogen H atom/ isotope can be formed, no, neutrons, deuterium or tritium!. That moment the balloon-shaped universe of mono-layers p/ e has already expanded on all sides and without temperature in an absolute vacuum space over a distance of approximately 10 - 12 billion light years (or more) relative to **centre C of the universe**. **That thin balloon of hydrogen is surrounded by an absolute vacuum inner space radius 10 – 12 billions of LY's and an infinite absolute vacuum outer space.**

4.9.2.2 FREE OF CHARGE CREATING ENERGY CYCLE OF THE UNIVERSE:

-) The moment forming H atoms *physically gravity* returns as well an enormous amount of *gravitational energy* relative centre C is added to the cycle of the universe.

Via hydrogen & *physically gravity*, a gigantic amount of *gravitational energy* is added to the universe/ USS and to the universe cycle over a distance of about 10 – 12 billions of lightyears completely free of charge with respect to **centre C** as well **gravitational energy generated inside the USS**.

That free of charge added *gravitational energy* forms the same driving force behind each cycle of the universe. **In fact this free of charge added *gravitational energy* is the 'dark' energy of the universe.**

4.9.2.3 START FORMING PHYSICALLY, CHEMICALLY AND MECHANICALLY FORCES OF THE ATOM:

Due speed of these H atoms these shell-electrons of hydrogen atoms/ molecules generate:

- a) physical gravity as well gravitational energy,
- b) the other physically forces, chemically and mechanically forces of the atom.

Document F1c & figures and document F1d & figures describe the origin of these physically, chemically and mechanically forces due speed and kinetic energy of the H atoms/ H₂ molecules in the universe.

These H atoms directly formed H₂ molecules & heat. Such pairs of shell-electrons generate their own set of gravity, physically and chemically forces & bindings.

-) With H atoms/ H₂ molecules temperature is back in the universe as well;

In the directly subsequent formation of hydrogen H₂ molecules and binding heat is released. That energy transforms the entire super 'cold' universe sphere shell into a USS filled with hot hydrogen plasma. Due gravity the expansion speed of the USS is braked. Because the universe forms a 100% closed system the released energy can just be transferred into *rotation speeds* and gravitational energy *relative centre C* of the universe.

Within the USS in the hydrogen the first level of about 4 – 6 rotations speeds arise. These rotation speeds form the starting point of the cosmic web.

4.9.2.4 COOLING THAT CLOUSED SYSTEM OF UNIVERSE/ USS TAKES AN EXTREMELY LONG PERIOD OF 13.8 BILLION YEARS; PRE-PHASE OF THE GALAXIES:

-) Only after an extremely long period of cooling down that physically hydrogen plasma into hydrogen gas / liquid hydrogen this *physical gravity* forms billions enormous cold spheres of 100% pure hydrogen in the USS as basic fundaments in the cosmic web. In time these spheres become hotter and hotter. Now gravity keeps these spheres together: This USS as closed system surrounded by a 100% vacuum inner and outer space lack 100% absence of atoms there cannot emit heat as photons of light and infrared into these vacuum areas. That is just possible by a) further expansion and b) by transforming back these freed photons into matter as electrons/protons and new hydrogen atoms/ molecules.

Such reconstruction of photons → protons/ electrons/ hydrogen takes an extremely long period of about 13.8 billion years. (That's why we can just observe 13.8 billion light year far of the universe and looking back in time)

So that simply cooling of H₂ plasma into hydrogen gas takes no less than approximately 13.8 billions of years! Further cooling towards liquid hydrogen and losing entropy takes another 6 – 11 billions of years. **Document F1c & figures show that reconstruction of protons/ electrons as result of that extremely long period of cooling processes.**

Only after transforming these photons into new protons/ electrons the universe/ USS can cool down further to the condensation point of hydrogen ending entropy universe wide as well. The transformation expansion speed towards and into 4 – 6 levels of rotation speeds is still going on.

-) Converting parallel expansion velocity USS into rotation/ angular velocity H₂ gas: This by hydrogen generated *physically gravitation* in the USS results in hyperbolic braking of the expansion velocity of the USS. The energy released in the breaking process of the USS is almost completely converted into about 4 – 5 levels of rotation speeds within the USS. These 4 - 5 levels of rotation form the bases for the formation of about 4 – 20 million **super clusters** as basis of the cosmic web each with 4 – 6 forms of rotation/ angular velocities present within that 'thin' USS of pure hydrogen H atoms/ H₂ molecules. This period of extremely breaking the expansion of the USS results in the forming of the rotating macro structures in the cosmic web with about 4 – 20 millions of first rotation points/ centers.

-) Entropy in the universe disappears when hydrogen has cooled to a condensation point of H₂ at approximately 20 Kelvin and all in the USS present hydrogen gas becomes a liquid:

Only after extremely long period of 13.8 billion years and further cooling down 6 – 11 billion of years that hydrogen to the condensation point of hydrogen at approximately 20 Kelvin in the USS those on 4 – 5 levels rotating pure gas clouds of hydrogen, can collapse by physically gravity starting from immense rotating gas clouds and being transferred into rotating spheres of liquid 100% pure hydrogen.

-) Formation of large central hydrogen spheres surrounded by 0 – 10 secondary smaller spheres of pure H₂ / Roemers rotating inside the USS around them:

Only about 25 -30 billion years after that **Little Bang** gravity starts the formation within that universe-spherical-shell/ USS of liquid hydrogen (without entropy) and by forming increasingly larger and larger by collisions also increasingly hotter primary **central hydrogen spheres** and surrounding 0 – 10 smaller **secondary 100% hydrogen spheres/ Roemers**.

Only in and around these hydrogen spheres locally entropy returns! Not in the extremely cold USS as whole.

Gravitation then keeps those by now again gas / plasma/ entropy shaped/ transferred hydrogen spheres together. (Entropy doesn't returns at the scale of the universe/USS and still isn't!)

Those central and hotter and hotter becoming and faster rotating central hydrogen and by rotation discus flattered central spheres are surrounded within the thin balloon shaped USS by 0, 2 or by up to 8 - 10 smaller and less hotter **secondary spheres / Roemers** rotating on distances of tens – hundreds of lightyears around these primary much larger rotating primary superhot central hydrogen spheres. Those **Roemers** show a much smaller rotation and consist out of 100% pure hydrogen as well.

All core areas of these many billions of futural galaxies start with the same amount of hydrogen. Those faster and faster rotating central, discus formed, spheres become larger and hotter relative these smaller, secondary less fast rotating, spheres/ **Roemers**!

4.10 FORMING WITHIN THE USS OF 4 – 20 MILLION EQUAL SUPER CLUSTERS EACH CONTAINNING 4 – 6 THOUSAND OR MORE FUTURAL GALAXIES; TRANSFORMATION OF THE THIN USS INTO THE COSMIC WEB:

That slowing down of the expansion velocity of $0.7c$ after the Little Bang and after forming H₂ & gravity & the conversion of expansion speed into rotation velocities first proceeded extremely quickly which resulted in a forced parallel formation of 4 – 6 forms and levels of rotations within the USS at **the level of super clusters**.

This resulted in relative empty areas and with starting hydrogen gas concentrated in rotating areas. After reaching the point of condensation hydrogen and loss of entropy this resulted in **paths** with liquid hydrogen in the form of super clusters now visible and present in the cosmic web.

This cosmic web of the whole universe/ USS may contain about 4 – 20 million or more of such 'small' spiderweb constructions. The cosmic web present in this thin balloon shaped USS is constructed out of about 4 - 20 million (or more) parts of such basic spiderweb constructions.

Now this macro cosmic web consists of about 4 – 20 million or more of such crossing/ concentration points/ and streams of liquid hydrogen around immense areas within the USS. The majority of the hydrogen by gravity was moved towards one of these concentration points and is present in these between connecting paths of galaxies and hydrogen.

In all crossing points of the cosmic web concentrations of thousands of futural EM, BS and S galaxies are present still as 100% pure hydrogen spheres. In the connecting paths still hundreds of futural galaxies and hydrogen are present due gravity on the way towards these crossing points.

Overall resulting in a spherical universe/ USS visible as an irregular spherical *cosmic spider web*.

These orbits and rotations of these H₂ spheres in the ‘spider web’ and their gravitation together result in collisions whereby these central hydrogen spheres of futural galaxies become increasingly larger and hotter and in time even nuclear fusion of hydrogen into deuterium/ tritium becomes possible resulting in the **Big Bangs** of EM, BS and S galaxies and neutrons.

4.11 DUE TO THE ABSENCE OF DEUTERIUM, TRITIUM AND NEUTRONS, IN THOSE PREFACE OF THE GALAXIES NUCLEAR FUSION IS DEFERRED FOR TENS OF BILLIONS OF YEARS:

-) **This whole first period of about 45 – 55 billions of years after the start/ Little Bang of the galaxies deuterium, tritium and neutrons, are completely absent. Inside these due collision in the meantime superhot and nuclear super critical central spheres of 100% pure H₂ the start of nuclear fusion is postponed for this whole billions of years taking period:**

In this period; **phases 1 – 15** in the cycle of the universe (**document G7**), deuterium, tritium and neutrons are still completely 100% absent. Due collisions by gravity those central hydrogen plasma become extremely hot and even super critical hot in terms of nuclear fusion. Due the 100% lack of deuterium, tritium and neutrons the start of nuclear fusion in those hot central H₂ spheres of *100% pure hydrogen* therefore isn’t possible.

-) **Lack deuterium, tritium and neutrons prevents the start of nuclear fusion for many billions of years:**

All galaxies have started with nuclear fusion in those central present gigantic superhot 100% pure hydrogen spheres. These central hottest spheres may or may not be surrounded by 0, 2 or up to 8 - 10 smaller side hydrogen and much cooler spheres/ **Roemers**, consisting of 100% pure hydrogen as well.

These 2 – 10 less hot **Roemers** rotate around that central sphere within the locally flat plane of the local universe-spherical-shell/ USS on distances just some hundreds - thousands of lightyears far away. The rotation axes these central spheres & smaller **Roemers** are everywhere perpendicular to the plane of the local USS.

Due to the lack of *deuterium, tritium and neutrons*, in these superhot central hydrogen sphere the start of nuclear fusion is held up and postponed for several billions of years till these central H₂ spheres reach such *super critical state* resulting in the forming of deuterium, tritium and neutrons.

4.12 ALL GALAXIES STARTED SOME 30 – 40 BILLION YEARS AGO WITH THEIR OWN SUPERHOT BIG BANG:

-) **The start of nuclear fusion in these billions of central H₂ spheres is accompanied by the cumulative forming of deuterium, tritium and neutrons:**

At a certain point of pressure and temperature increase the level formation of deuterium, tritium and neutrons will be reached and *nuclear fusion* starts. At the start of nuclear fusion/ **Big Bangs of the galaxies**, deuterium, tritium and neutrons are formed in extremely increasing large numbers. Once neutrons are present, the nuclear fusion process in these super critical central hydrogen spheres immediately increases super exponentially and the nuclear fusion immediately gets completely out of hand.

*In those smaller and much cooler surrounding **Roemers** nuclear fusion doesn't start!*

During the nuclear fusion in these super critical **central hydrogen spheres/ Big Bangs**, all elements of the periodic table are formed from hydrogen up to uranium and even beyond up to elements of approximately number 120 may be even beyond that.

Those superhot **Big Bangs** and start of all galaxies are extremely wild and completely different from the 'quiet' nuclear fusion in the later 'non-critical' start of fusion in stars. (Inside stars the nuclear fusion does not start under *extremely lower super critically conditions* and inside stars resulting in nuclear fusion of hydrogen into limited just helium for many billions of years)

-) **Within those Big Bangs, that nuclear fusion areas consists roughly of three layers:**

- a) central core with newly formed elements from no. 92 - 120 and may be even higher,
- b) the nuclear tens of fusion zones with elements formed in it from no. 92 descending outwards to He and
- c) a thick zone with not yet fused and still filled 100% pure hydrogen.

-ad a) All atoms formed in the core fusion area > no. 92 - 120 subsequently transform into black hole atoms:

Due the enormous pressure and by forming *Van der Waals/ London forces/ bindings* of the electron-pairs these just in the centre formed atoms 92 – 120 imploded towards extremely small blackhole atoms containing the *same amount of protons and electrons*. **Document F1e & figures.**

Such transformation normal atoms → collapsed blackhole atoms results in a tremendous amount of nuclear waste as protons, electrons, muons, neutrons, neutrino's, photons.

These blackhole atoms collapse together forming the fast rotating **central black hole** and **Layer I** of the coming galaxy. **Phase 16 document G7 & figures 42 - 54 G8 describe these Big Bangs of the galaxies.**

These by gravity created **central, super massive blackholes** generate an amount of gravitation equivalent of millions - billions of **sun -gravitational-equivalents/ SGE's**. These rotating **Big Bangs** of those central hydrogen spheres and nuclear fusion of hydrogen overall results in an enormous loss of 'shell' electrons of atoms and thus an enormous loss of physical gravity & connected gravitational energy!

In total, those **Big Bangs** in those central hydrogen spheres mean a net loss of about 10 - 25 % of that moment present physical gravity and a corresponding loss of gravitational energy!

-) Direct one strike forming enormous central blackhole of the galaxy during these Big Bangs:

In all the cores of fusion areas, the electron shells/ clouds of those newly formed atoms from no. 92 - no. 120 immediately collapse towards very close to their own atomic nucleus. All newly formed higher atoms in the core of the fusion area immediately implode further and collapse almost the very same moment into extremely small and tiny black hole atoms creating a lot of subatomic garbage as well.

Together these blackhole atoms implode into a superfast, with about 0.5 light speed c , rotating super massive central black hole of the galaxy/ CBHG! These CBHG's (**Layer I**) are the first black holes and are formed the very same moment these **Big Bangs** and in one connecting strike.

These **super massive central blackhole of the galaxy/ CBHG** gets a radius of many hundreds of thousands of kilometres. Due to that enormous angular velocity about 0.5 the speed of light c , all *central black holes of these galaxies* get the shape of a superfast *rotating discus* filled with each other electrically & magnetically repulsing blackhole atoms. Despite this enormous internal *electrically repulsion* these CBHG's are stable and held together by their enormous *physically gravity/ angular gravity* as long at least about 6 - 8 sun/solar-gravity-equivalents/ SGE's are generated and present inside the blackhole. **Figures 42 – 54 G8 & figures 2a and 2b G22**

In the core of all galaxies, these **Big Bangs** result in the formation of just one enormous, rapidly rotating, central discus shaped black holes of galaxies/ CBHG's with dimensions of many thousands of kilometres and rotating at a few tens percents the speed of light c .

Anyhow nuclear fusion in the *central sphere* results there *in the loss of a lot of gravity* resulting in disturbance of the gravity equilibrium between central sphere and surrounding *secondary H_2 spheres/ Roemers*. Due the decrease of gravity in the central sphere these **Big Bangs of galaxies** result in a throne away of these *secondary spheres/ Roemers* as basis of the spiral arms of the galaxies.

-ad b) With this nuclear fusion/ Big Bangs in the core a shock wave is created. This shockwave in the combination of an enormous rotation speed this outer nuclear fusion zone of elements no. 92 – He is thrown away mainly within the locally flat universe-spherical-shell/ USS:

During these **Big Bangs and loss of gravity** in the central sphere/ core and due this gigantic shock wave the layers with elements of lighter elements from helium/ He → uranium/ U are thrown away mostly inside the locally present almost flat and almost vacuum USS. These newly formed atoms/ elements periodic table number 4 (Be) - 92 (U) thus escape a direct absorption by these newly formed central black holes of the galaxy.

These central black holes are formed more or less the very same moment with these **Big Bangs** and present mainly in the crossing points of the cosmic web. These central blackholes of galaxies are the very first, oldest and largest black holes in the universe/ USS.

The now inside our solar system present higher elements He – 92 (U) in galaxies mostly originate these superhot, **Big Bangs** which started already some 30 – 40 billions of years ago. *These Big Bangs and start of the galaxies are older 13.8 billions of years and thus aren't observable anymore!*

-ad c) Outside that nuclear fusion area of these Big Bangs in the central sphere still another thick layer of non-fused pure hydrogen is present:

Due the loss of gravity and this superfast rotation and shockwaves those layers with nuclear fusion of no. 92 – He as well thick layer of unfused hydrogen are thrown away and their angular speed mainly within the *flat plane* of the local present universe-spherical-shell/ USS/ balloon!

After these **Big Bangs** the amount of left over, *non-fused, hydrogen in spiral and balk-spiral galaxies* is about a ten - hundred times higher compared the **Big Bangs** of elliptically (E/M) galaxies resulting there in an extremely large central blackhole equivalent some billions of SGE's.

Thus the total gravity in spiral galaxies still must be higher relative the gravity these E/M galaxies. May be due the *higher angular speeds* such E/M galaxies still generate the same amount of gravity as (S) and (BS) galaxies do.

4.12.1 THESE BIG BANGS RESULT IN DIFFERENT FORMS OF GALAXIES AND ENORMOUS DIFFERENCES IN FORM AND SEIZE THEIR CENTRAL BLACKHOLES:

Depending on the type of galaxy, the gravitation of these central black holes amounts to:

- 1) **spiral (S) galaxies** with a central blackhole of just *several million* sun/solar gravitational equivalents/ SGE's together with 3, 4 – 10 spiral arms; **each Roemer** results in one spiral arm.
- 2) **barred spiral (BS) galaxies** with a central blackhole of many *tens - several hundreds* of millions of SGE's present with just two larger spiral arms and
- 3) **compact elliptical (E/M) galaxies without any spiral arms** with a central blackhole up to a *few billions* of SGE's.

Furthermore, such black holes show two co-rotating luminous vortexes around either side of their rotation axis up to about at least five hundreds of lightyears ending in Fermi bubbles and forming of new stars and small parallel galaxies. These differences in seize of the galaxies, their central blackholes and seize of their jets/ vortexes are the result of their foregoing history of 40 – 45 billions of years! **Document G18 and steps 1 – 15 document G7 & figures G8.** The structures and functioning of these central black holes are, however, globally the same.

Anyhow after these **Big Bangs** most of present hydrogen remains unfused in the surrounding of the blackhole or present inside the throne away spiral arms of these spiral (S)/ barred-spiral (BS) galaxies.

In elliptically galaxies *without spiral arms* during these Big Bangs up to a factor hundred x more hydrogen is fused. This results in small compact E/M galaxies with gravity concentrated in their relative enormous heavy central blackholes.

These **Big Bangs** of galaxies and the formation of their central black holes are accompanied by gigantic shock waves within the universe-spherical-shell/ USS. **Figures 42 – 54 document G8** www.uitervijkwinkel.eu . As well a tremendous emission of nuclear waste/ garbage send and delivered to both vortices/ co-rotating jets

4.12.2 WHAT HAPPENS THOSE 2 – 10 SECONDARY SPHERES/ ROEMERS?

-) **After these Big Bangs and loss of gravity in the central H sphere those 2 – 10 Roemers are thrown away in the locally flat USS:**

During those Big Bangs the total loss of gravity remains limited to only about 10 – 25 % overall. Enough disturbing the gravity equilibrium between the *central H₂ sphere* and the around rotating **Roemers**. Due to the tremendous loss of physical gravity in the *central hydrogen sphere*, those **2 – 10 secondary spheres/ Roemers** of still pure hydrogen are thrown away/ catapulted within the local, almost flat, plane of the universe-spherical-shell/ USS and much smaller own rotation. May be thrown away at a speed of about 0,1 the speed of light c.

During these Big Bang *no nuclear fusion* occurs in those **Roemers**. Because physically gravity spreads with *infinite* speed through the universe/ USS these **H₂ spheres/ Roemers** directly react the very same moment at the loss of gravity during these **Big Bangs of the galaxies**.

4.12.3 SHOCK WAVES OF GRAVITATIONAL ENERGY SPREAD AT JUST THE SPEED OF LIGHT c:

Contrary *physically gravity* which spreads at *infinite* speed of through the whole universe (USS & vacuum areas inside / outside) these *shockwaves of gravitational energy* only travel atom → atom. Thus these shock waves like all particle based form of radiation are limited by: a) the speed of light c and b) only pass through the USS and there present H/ H₂ atoms/ molecules serving as ‘ether’.

-) **LIGO/ Virgo only measure such by the speed of light c limited shock waves of gravitational energy; LIGO/ Virgo don’t measure this infinite speed spreading of physically gravity!**

Only these speed of light limited shockwaves of gravitational energy traveling through the USS and there present hydrogen as ‘ether’ are observed/ measured by **LIGO/ Virgo**. **LIGO/ Virgo** don’t observe this by the shell-electrons emitted *physically gravity* which travels with infinite speed ($>>c$) through the whole universe as well via those absolute vacuum areas of the universe!

-) **Physically gravity recently (2023) discovered by movements of pulsars:**

This physically gravity is recently found by extremely slow changes in the movements of pulsars with a ‘wave length’ of months - years. These pulsars are (real time) subjected to gravitational changes caused by two, at far distances each other rotating, central blackholes of two colliding galaxies in the end of their colliding process. The *overall gravitational effects* of these colliding central blackholes manifests as an universe wide present real time physically gravitational effect with a ‘wave length’ of months - years. In reality this physically gravity of these two central blackholes spreads universe wide at an infinite speed!! The overall effect *misleading* as ‘waves’ on this pulsar!

These overall observed gravitation ‘wave lengths’ can be measured at pulsars as well all other celestial bodies in the universe like planet Earth!!

-) **Transport of photons/ energy emitted by the Big Bang is limited by the speed of light c as well:**

By these **Big Bangs** generated energy/ light is transported through the USS by the present ‘ether’ of hydrogen and limited by the speed of light c. Only some centuries after these **Big Bangs** via the USS the energy/ photons, emitted and elements 92 – 4 (Be) and non-fused hydrogen reaches these secondary about 0,1c moving spheres/ **Roemers** starting an extremely slow evaporation these **Roemers** due the extremely low concentrations of hydrogen/ ‘ether’ in the USS. This evaporation results in forming a curved extremely long path and mixture of elements He – 92 and evaporated hydrogen which manifests as spiral arms. In time of billions of years this ‘evaporation’ path / spiral arms stretches over a distance of tens of thousands light years forming curved spiral arms with mix of hydrogen and higher elements.

Due the extremely slow evaporation by the heat of the **Big Bang** every **Roemer** results into just one long curved spiral arm. Due the low concentration of hydrogen evaporations of these **Roemers** takes many millions of years resulting in curved spiral arms some hundreds of light

years long. Cooling down that hydrogen which takes another 13,8 billion of years results in the formation of stars and surrounding planets and moons. **Phases 17 – 22 document G7 & corresponding figures G8.**

4.12.4 FORMING OF THE CENTRAL BLACK HOLE OF THE GALAXY:

-) **Due the enormous angular velocities, those central black holes take on the shape of a disc:**

After those **Big Bangs of the galaxies**, that rotational/ angular velocity of the entire futural galaxy amounts to a few tens of percents the speed of light c . Due to the centrifugal force, these central black holes formed during these **Big Bangs** are strongly flattened getting the shape of a super massive rotating disc and completely filled with black hole atoms no. 92 – no. 120 and may be possibly higher. In this central blackhole of galaxies present blackhole atoms are $\geq$ no. 92 (U). Thus after these **Big Bangs of the galaxies** *all blackhole atoms* in **Layer I** are completely instable!

-) **Chapter 5 & figures I – VI describe and show the layer by layer construction and structures central black holes galaxies:**

Figures 1a, 1b and 1c document G22 figures show the blackhole as total cross section view,

4.12.5 BLACKHOLES ARE EXTREMELY SELECTIVE THEY ACCEPT:

-) **All black holes are extremely selective what they accept and they don't accept:**

Black holes are extremely selective and only accept:

- a) Normal atoms made up with at least 2 pairs of shell-electrons, thus the acceptance is only starting elements $\geq \text{Be}$,
- b) Such towards their atom-cores collapsed normal atoms starting **Be** are made up of exactly the very same number of protons and electrons ($1n = 1p + 1e$). All not fitting atoms/ particles and radiation are refused resulting in a lot of *blackhole garbage*.
The low energy waste ($< 10^{20}$ GeV) is transported to one of both present jets/ vortices.
The high energy waste ($10^{20} - 10^{22}$ GeV) waste as cosmic radiation towards the USS and is forced staying inside the USS.
(Lack of an 'ether' of atoms like H these forms of waste/ radiation cannot enter/ pass the gigantic 100% vacuum areas inside & outside surrounding the USS!).

4.12.6 BLACK HOLES GENERATE A LOT OF GARBAGE/ WASTE OF ATOMS ENTERING BECOMING BLACKHOLE ATOMS:

- a) The electron-shells **H, H₂, He, Li, deuterium, tritium**, cannot collapse; thus blackholes cannot accept: H, H₂, He, Li, deuterium and tritium which atoms due gravity of the black hole are 100% added to **Layer III and Layer IV with nuclear fusion**.
- b) Single protons/ electrons, H plasma, neutrons, subatomic particles, neutrino's, photons of light/ infrared themselves don't generate any *physically gravity* and thus escape the enormous gravity of the central blackhole!
- c) The collapsing of normal atoms $\rightarrow$ blackhole atoms and nuclear fusion **Layer IV** results in a lot of nuclear garbage & waste like protons, electrons, H plasma, neutrons, photons, subatomic particles/ radiation as well cosmic particle radiation transported away the blackhole through **Layer III** towards the fast rotating vortices/ jets in **Layer V**.

4.12.7 DEVELOPMENT OF VORTICES FOR DISCHARGE THE DISPOSAL OF ALL SUBATOMIC GARBAGE/ WASTE & RADIATION:

-) In addition to these rapidly rotating CBHG's, two rotating vortices/ jets develop around their rotation axis:

During the collapse of the electron shells of ordinary atoms towards their atom cores, many photons of light and infrared are also rejected in addition to the emission of single protons and electrons. These a) protons/ electrons as well b) (double) neutrino's, (double) photons of light and infrared and half photons of light/ infrared aren't accepted by the blackhole as well.

All by the blackhole refused particles and radiation are caught in **Layer III** and mainly delivered at the jets/ vortices of **Layer V** delivering that garbage up to hundreds of lightyears away the blackhole.

From the inside of blackholes (**Layer I**) only physically gravity is emitted! The stabilization of in **Layer I** present instable collapsed blackhole atoms is only possible in the very outside of the blackhole present **mono-Layer II** of this central blackhole galaxy.

During such nuclear stabilisation of black hole atoms > no 92 all kinds of particles such as protons/ electrons, neutrons, photons, are released in **Layer II** which can only be 100% delivered to **Layer III**. Thus these forms of subatomic particle radiation, are just released and emitted at the very outside/ mono **Layer II** of these central black holes. (Emission of EM, subatomic and cosmic radiation **Layer I** isn't possible!) During the adaptation of ordinary atoms into black hole atoms, all kinds of subatomic residual particles/ 'waste' are created as garbage:

-) Vortices as discharge subatomic waste and all particle & waves based forms of radiation:

These for adaptation in the blackhole unusable particles/ radiation must therefore be discharged towards outside the black hole as (sub)-atomic 'waste/ garbage'. This is done by first diverting these released particles to the blackhole surrounding fixed hot layer of **H, H₂, He, Li, deuterium, tritium atoms/ isotopes**, which due their composition (missing the two pairs of electrons), their electron shells cannot collapse towards blackhole atoms. That's only possible after nuclear fusion of these atoms towards $\geq$ **Be** the first atoms periodic table accepted as collapsed super small blackhole atoms by the blackhole.

Through that hundreds to thousands of kilometres thick **Layer III**/ 'ether' of not accepted **H (plasma), H₂, He, Li deuterium and tritium**, all the unaccepted EM, subatomic and cosmic particle radiation are discharged to one of the two rapidly co-rotating vortices/ jets parallel formed around the rotation axis of the black hole.

Through those co-rotating vortices/ jets, all the unaccepted subatomic & gravity-less 'waste' from black holes is discharged and transported up to many thousands of light years far away outside the black hole/ CBHG!

4.12.8 VORTICES/ JETS CONSISTS OF AT LEAST FOUR INNER VORTICES:

These vortices are build up at least five *separate each other rotating vortices*:

a)The outer layers/ spirals is constructed out of pure hydrogen layer (1) formed there out of protons/ electrons resulting in a hot outer layer of these jets/vortices reason they are visible,

- b) Inside this outer H plasma spiral (1) without H₂ a vortex of plasma protons (2)/ and a contra rotating vortex of plasma electrons (3) are present;
- c) Inside these 3 vortices of plasma hydrogen & protons/ electrons another 2 rotating vortices are present consisting *proton/ infrared related particles & waves forms of radiation* (4) and *contra rotating electron/ light related forms of radiation* (5)

These jets can extend to thousands may be even some millions of light years on either sides the rotation axe of these central blackhole of the galaxy/ galaxies.

4.12.8.1 FUNCTIONS VORTICES/ JETS:

-) Recycling of all subatomic waste/ garbage into protons, electrons and hydrogen:

These plasma shaped vortices/ jets are emitted from the blackhole over *about half the speed of light c* as an at least 5 layered plasma construction of vortexes/ jets recycling of subatomic 'waste'. Within these vortices/ jets all forms of nuclear 'waste' step by step are reconstructed into new protons, electrons and finally hydrogen atoms/ molecules. **Document F1c & figures.**

Such reconstruction of protons, electrons and hydrogen inside these fast rotating vortexes/ jets requires a period of many thousands may be even, over many millions of years. All particles and particle based forms of radiation/ 'waste' 100% are transferred and recycled back into protons, electrons and ultimately into new hydrogen.

That reconstruction of matter forms the fundament of a 100% closed universe for mass, matter and kinetic energy and as basis for the endlessly ongoing cycle of this 100% closed universe. Finally during the long period inside those vortices at the end of those vortexes/ jets hydrogen is formed resulting in new clouds of hydrogen resulting in stars and clouds of stars as small parallel galaxies are formed from that released 'waste' of the (central) black holes of the galaxies.

4.12.9 VORTICES ARE FED VIA LAYER III OF THE BLACKHOLE:

-) The thick layer of unaccepted plasma of H, H₂, He, Li, deuterium and tritium together with the vortexes/ jets form the 'sewerage' and the 'purification'/ 'tubular recycling factories' of black holes:

So all unaccepted forms of matter and radiation (without any gravity!) are diverted via the surrounding layer with plasma's of H, H₂, He, Li deuterium and tritium to both rapidly co-rotating tubular vortexes/ jets. These rapidly rotating vortices/ jets with rotational velocities up to tens of percents the speed of light c ensure the in principle 100% effective removal of all unaccepted 'waste' from the black hole(s) over a distance of many thousands may be to millions of light years.

***5) THE LAYERED STRUCTURE OF CENTRAL BLACK HOLE GALAXIES & EXPLANATION FIGURES G22:**

Figures G22 1a, 1b, 1c, 2a and 2b show the **Layer I – Layer VI** structure of black holes and of the processes within each layer separately as: 1) cross section view, 2) cross section & slanting view, 3) exterior view and 4) total cross section view of the blackhole.

5.1 GENERAL ASPECTS:

Due to the gigantic high rotation/ angular velocity of approximately 0.3 - 0.5 the speed of light c , black holes basically have the form of a discus constructed out of 6 layers:

5.1.1 LAYER I: THE DISCUS SHAPED BARE CORE OF CENTRAL SUPER MASSIVE BLACKHOLES OF GALAXIES:

- 1) At the start of these central black holes of galaxies/ CBHG's approximately 30 – 40 billion ago and approximately 45 – 55 billion after the start of the current cycle of the universe, these CBHG's are nearby 100% filled with instable black hole atoms from no. 92 to approximately no. 120. These instable blackhole atoms now have already been stabilized partly and 100% stabilized during the next 350 – 450 billion of years expansion the USS.
- 2) The present black hole atoms consist of ordinary atoms under extremely high pressure and angular velocity the electron shells of ordinary atoms $\geq \text{Be}$ have been collapsed/ imploded to close their atomic nucleus transferring into tiny, super small and massive, blackhole atoms starting **Be** up to beyond no. 92 and even to no.120. **Document F1e & figures www.uitervijkwinkel.eu** .
- 3) These CBHG's rotate, about 0.3 – 0.5 the speed of light c , around their axe as super massive discus-shaped core consisting super massive black hole atoms $\geq \text{U}$ and a small part elements **starting Be** added in the period after these Big Bangs.
- 4) Such extremely fast rotating blackhole atoms generate much more physically gravity their originally ordinary generated! (= *Physically explanation origin of dark matter!*)
- 5) Such collapsed blackhole atoms repelling each other mutually electrically like in a gas! These repelling blackhole atoms are jailed inside the blackhole just by the enormous gravity of the blackhole.
- 6) Due that electric repulsion of the present blackhole atoms such *blackholes physically cannot further collapse into a singularity!* **Singularities are exclusively mathematically possible!**
- 7) Due that mutual repulsion black holes are very unstable by default! These repulsing black hole atoms can only be held together if the black hole atoms present in totality generate more physical gravity than approximately 0.6 – 0.8 Sun/solar Gravitational Equivalents/ SGE's. In the smallest blackholes/ neutron stars up to 6 – 8 SGE's normal blackholes is required for maintenance of their stability.
- 8) Below the *Critical black hole gravitation/ Cribhgra* of about 0.6 – 0.8 SGEs for neutron stars and of approximately 6 - 8 SGEs for black holes, these compressed celestial bodies disintegrate into loose instable black hole atoms.
- 9) Such loose instable blackhole atoms disintegrate explosively into an equal number of protons and electrons forming mono-spherical layers of protons/ electrons. Such as present after *Nebula explosions*.

- 10) In black holes, these black hole atoms are so compactly stuck together that no form of electro-magnetic radiation, subatomic particle radiation nor cosmic particle radiation nor any proton/ electron/ photon can escape from the core (**Layer I**) of such a black hole by nuclear fission.
- 11) Those bare, rapidly rotating discus-shaped cores of galaxies/ CBHG's only generate *physical gravity*. These cores of blackholes emit such physically gravity, completely unhindered in all directions. Possible because this *physical gravity* isn't based on particles nor is based on any form of wave motion and energy.
- 12) This *physical gravity* originates and are emitted by the 'shell' electrons of all black hole atoms present in that central core of the galaxy. **Documents E3, E3-1, E3-2 and F1e & figures** describe the origin and speed related structure of this *physically gravitation*.
- 13) These 'shell' electrons of black hole atoms also accept completely unhindered all physical gravity coming from outside the black hole. This makes mutual attraction with the physical gravitational radiation from outside possible.
- 14) Within that discus shape slow internal flows of black hole atoms occur as minuscule solid spheres/ super massive blackhole atoms starting Be. **Figures 2a and 2b**. This internal flow of blackhole atoms in the core results in a continuous refreshment of the most outer **Layer II** of the blackhole. The only location nuclear fission instable blackhole atoms **Layer I** is possible.
- 15) These blackhole atoms **Layer I** only emit their *physically gravity*; From **Layer I** any form of EM, subatomic or cosmic radiation can be emitted.
- 16) The atom cores of blackhole atoms cannot hardly vibrate. The temperature in the centers of black holes is just about 2.7 kelvin. Standard black holes are extremely cold and thus cannot evaporate like **Hawkings/ Penrose** stated!
- 17) That gigantic amount of physical gravity **Layer I** is shown as thin white arrows in **figure G22 1c.jpg**. That *physical gravity* is the only 'radiation' that passes completely unhindered all surrounding layers and through the core of the blackhole.
- 18) Curious this physically gravity without mass and waves passes the absolute vacuum spaces in the universe without 'ether' of atoms and even at infinite large speed as well.
- 19) Contrary to *physically gravity* those absolute vacuum spaces in our universe form an absolutely 100% impregnable barrier for all other forms of: a) electromagnetic EM radiation, b) all subatomic and c) all forms of cosmic radiation and d) shockwaves of gravitational energy measured by **LIGO/ Virgo**.
- 20) The 100% vacuum areas are impregnable for all particle based forms of radiation which need an ether of atoms. Their electric & magnetic micro-fields are missing in those absolute 100% vacuum areas of the universe inside & outside the USS.
- 21) All forms of radiation based on particles with mass, matter, kinetic energy and waves movements need an 'ether' of atoms making moving by waves possible. The speed of such atom → atom passing/ guiding system of waves is limited by default to a maximum the speed of light c.
- 22) Due to their enormous rotation/ angular velocity and the discus shape, inside all (central) types of blackholes extremely slow flows of instable black hole atoms occur within this discus-shaped core of these **CBHG's**. **Figures 2a & 2b**.

5.1.2 **LAYER II: MONO-BLACKHOLE ATOM THIN OUTER LAYER CENTRAL BLACKHOLES GALAXIES WHERE NUCLEAR FISSION & STABILISATION BLACKHOLE ATOMS ARE POSSIBLE:**

- 1) These slow internal flows of blackhole atoms within **Layer I** all black holes do ensure the continuous renewal and refreshment of this outermost **Layer II** of mono black hole atoms present in the cores of all types of blackholes.
- 2) The outermost *mono atomic layer* of black holes is shown in **Layer II**. This extremely thin mono-atomic layer is present around the whole disc shaped core of all (central) black holes.
- 3) Exclusively in this outer and thin *mono-atomic thick* super cold **Layer II** nuclear stabilizations of instable black hole atoms are possible by successively step by step emitting:
 - a) one single proton from atomic nuclei (long red arrows) and
 - b) ejecting one single (yellow) electron as either one single shell' electron of these blackhole atoms or as one single electron out of the atomic nucleus. ($1n = 1p + 1e$)
 In **Layer II** at the outside of the blackhole *protons and electrons react by the temporally forming a neutron*. (In small blackholes known as neutron stars) Together these emitted single protons and electrons form neutrons
 - c) short red arrows for the proton-related infrared radiation and
 - d) short yellow arrows for the electron-related radiation of light.
- 4) The escape of protons and electrons during the stabilization of an unstable black hole can only occur if these released protons/ electrons during this stabilization get a gigantic energy levels of approximately $10^{15} - 10^{22}$ GeV as attached photons of light/ the electron or attached photons of infrared/ the proton. This amount of energy is needed escaping from the black hole atoms present in **Layer II** of the black hole.
- 5) This step by step stabilization of black hole atoms by emitting either one electron or one proton is recorded in the **minimum/ maximum 1 principle (Min/max 1 principle)**.
Document F1f www.uitervijkwinkel.eu
- 6) Within this extremely thin mono-**Layer II** itself transport of protons, electrons, neutrons, photons, neutrino's isn't possible. These forms of radiation are delivered in **Layer III** consisting out of **H (plasma) , H₂, He, Li and deuterium and tritium atoms**.
- 7) Only physically gravity from inside **Layer 1** as well from outside is able passing **Layer II** completely unhindered.

5.1.3 **LAYER III: CONSISTING OUT OF BY CENTRAL BLACKHOLES GALAXIES REFUSED THICK LAYER OF PLASMA'S OF NORMAL H, H₂, He, Li, DEUTERIUM AND TRITIUM ATOMS:**

- 1) All blackholes are surrounded by a co-rotating hundreds – thousands of km thick layer of **H, H₂, He, Li deuterium and tritium** atoms/ molecules delivered by, into the blackhole falling, stars/ planets. These atoms aren't accepted by the black hole because the electron shells/ clouds of these smallest atoms even under extremely high pressure cannot collapse towards their atom cores becoming super small and super massive blackhole atoms.
- 2) Thus plasma's of **H, H₂, He, Li, deuterium and tritium** cannot be absorbed and enter into **Layers II and I** of the black hole. Those lightest atoms/ elements periodic table are 100% rejected by blackholes just like all smaller subatomic particles!
- 3) That transformation normal atoms into blackhole atoms is just possible starting **Be** and higher because inside the electron-shells/ cloud such atoms **Vander Waals/ London bindings** can be formed between the their present pairs of electrons inside these atoms.

- 4) For collapsing/ imploding towards blackhole atoms besides an enormous pressure at least two pairs of shell-electrons are required. (Forming such collapsed blackhole atoms is just possible starting element **Be**).
- 5) Due the enormous gravity this not accepted **Layer III** of hot **H, H₂, He, Li deuterium and tritium** by their own gravity is fixed and due nuclear fusion acts as a hot plasma.
- 6) This 0.2c – 0.4c co-rotating **Layer III** of normal atoms plasma's of H, H₂, He, Li deuterium and tritium acts as an 'ether' guiding the protons, electrons, neutrons, photons and neutrinos towards both jets/ vortices **Layer V**.
- 7) Inside this surrounding **Layer III** consisting of plasma's of **H, H₂, He, Li, deuterium and tritium** a separation occurs into:
 - a) low-energy forms of radiation with an energy level of approximately $10^{15} - 10^{20}$ GeV with discharge towards the 2 jets/ vortexes and
 - b) high-energy particles of protons/ electrons with an energy level of $10^{20} - 10^{22}$ GeV with discharge by **Layer III** towards the thin USS and there present low concentration of hydrogen and billions of galaxies.
- 8) Via **Layer III** this *low energetic* cosmic particles and EM radiation are 100% transported, towards and delivered at the beginnings of these 5 smaller vortexes **Layer V**.
The *high energetic* cosmic radiation is 100% delivered at and stays in the connecting USS.
- 9) None of these USS delivered particles/ radiation with their own surrounding electrically and magnetically micro-fields can enter/ escape towards the enormous 100% vacuum areas of the universe present inside and outside this thin USS of hydrogen and galaxies because there atoms are 100% absent and thus the for transport required electrically and magnetically micro-fields are 100% absent as well!
- 10) From the core, **Layer I** of the blackhole, a gigantic amount of *physical gravitational* radiation passes completely unhindered this **Layer III** as well, shown as just a few white arrows. Possible because physically gravity isn't based on *particles*!
- 11) The by NASA/ ESA published images/ photos of these central black holes of galaxies/ CBHG's (**M87 & Sagittarius A***) only this dark surrounding thick **Layer III** with **H, H₂, He, Li and deuterium and tritium atoms** is visible.
- 12) That **Layer III** is dark colored because very little high-energy, poorly visible radiation can break directly through and escape that layer. Some reflections of light from stars are visible. These stars in **Layer VI** are completely stripped of their centers containing atoms $\geq$ **Be**. Just H, He, Li remain as leftovers.
- 13) The superhot centers of stars containing superhot plasma $\geq$ **Be** are transferred into **super cold blackhole atoms 2.7 kelvin** and by emitting a lot of photons of light and infrared & subatomic particles.
- 14) From Earth and the **L2 point**, the discus shaped core of black hole remains completely invisible!

5.1.4 LAYER IV: DONUT-SHAPED ZONE WITHIN LAYER III WITH NUCLEAR FUSION OF H, H₂, He, Li, DEUTERIUM AND TRITIUM UP TO Be AND HIGHER AS WELL IN DIRECT CONNECTION LAYERS II / I:

-) Fused atoms starting Be are accepted by the blackhole via Layers II and I:

- 1) At the edges of the discus-shaped **Layer I/ II** core of the central black hole, within **Layer III**, a ring/ donut-shaped **Layer IV** will be formed in which, due gravity, an extremely high temperature as well extremely high-pressured plasma of mainly hydrogen & isotopes

He, Li are present and will be accumulated by objects falling into the blackhole.

- 2) That ring/ donut-shaped **Layer IV** with nuclear fusion has a direct connection **Layers II & I** of the super cold core of the blackhole.
- 3) Within that superhot ring/ donut-shaped, co rotating ring, the pressure and temperature increases the level hydrogen can fuse step by step into He, Li and ultimately into the element **Be**, may be even higher.
- 4) Starting *element Be* onwards, the two electron pairs and **Vander Waals/ London forces** required for the transformation of ordinary atoms into black hole atoms are present inside these atoms. Such two pairs of electrons at least are required for the implosion of the electron shells/ clouds of normal atoms towards their atom core becoming blackhole atoms.
- 5) These black hole atoms formed in **Layer IV** will be directly added to the core **Layer II & I** of the black hole and absorbed there resulting growing the blackhole in seize.
- 6) During this nuclear fusion up to $\geq \text{Be}$ and collapse, all kinds of subatomic particles are released in the form of subatomic radiation that are transported via this (pink colored) **Layer III** towards one of the two vortices/ jets or depending the amount of energy towards the USS.
- 7) Up to now is assumed that acceptance of atom by blackholes only starts at $\geq \text{Be}$ and presence of at least 2 pairs of shell-electrons. It may be possible depending the pressure this collapsing of electron- shells/ clouds of normal atoms and acceptance by the blackhole only starts at atoms with more (3, 4, 5, 6) pairs of shell-electrons like present in elements C, N, O.
- 8) Absorption into the black hole also requires as well such black hole atoms are composed of the *very same number of protons and electrons*. ($1n = 1p + 1e$).
- 9) During nuclear fusion a lot of photons and subatomic garbage are released which are transported via **Layer III** towards the vortices **Layer V**.
- 10) Black holes have a completely predictable structure and their physical, chemical and nuclear processes are predictable as well.
- 11) Blackholes themselves can be completely described by these **Layers I – IV** and donut-shaped zone with nuclear fusion, can be *mathematically modelled and quantified*.

5.1.5 LAYER V: THE VORTICES OF BLACKHOLES:

- 1) Around the rotation axis of all (central) black holes, two macro vortices/ jets are formed one at either side, which in principle rotate the same direction and the same speed with the angular velocity (about $0.2\ c - 0.4\ c$) of the central black hole of the galaxy itself.
- 2) All in **Layer II** and **Layer IV** released low energetically ($< 10^{20} - 10^{22}\ \text{GeV}$) protons/ electrons/ neutrons, E/M radiation (photons/ neutrinos), subatomic particles and cosmic particle radiation are discharged via this co-rotating **Layer III** towards one of the two present vortices.
- 3) (The high-energy protons and electrons ($> 10^{20} - 10^{22}\ \text{GeV}$) temporarily form neutrons that break through **Layer III** as uncharged particles and escape towards the universe-spherical-shell/ USS and present hydrogen as high energetically cosmic particle radiation staying inside the USS)
- 4) These two (plasma shaped) vortices/ jets originate and are connected **Layer III** of the blackhole and co-rotate about $0.2\ c - 0.4\ c$ with that **Layer III** and the discus shaped core of the black hole.
The linear speed within these vortexes towards outside the blackhole will be about $0.1 - 0.2$ the speed of light c .

- 5) These vortices/ jets consist of at least 5 each other separated spiral rotating at $0.2\text{ c} - 0.4\text{ c}$:
 - 1) Outer curved layer (1) of plasma hydrogen atoms,
 - 2) Inner vortex of red colored protons (2) & yellow colored electrons (3)
 - 3) inside vortex of protons attached energy/ infrared photons (4) and contra rotating vortex of yellow colored electrons related photons of light (5). All spirals of subatomic proton related red colored single particles/ forms of radiation of about $0.2\text{ c} - 0.4\text{ c}$ around and disappear about $0.1 - 0.2\text{ c}$ from the blackhole.
- 6) In total such vortices of blackholes are constructed out of at least 5 different each other separated sub vortices.
- 7) Main goals of these vortices/ jets:
 - a) the discharge of all subatomic waste/ garbage of nuclear processes inside and around blackholes; After a short period of some years the released protons/ electrons form hydrogen atoms resulting in hot hydrogen plasma making these vortices visible. Within 13.8 billion years this hydrogen plasma cools down about 20 Kelvin resulting in small hydrogen spheres becoming finally small stars and parallel galaxies
 - b) Reconstructing the protons/ electrons related subatomic waste/ garbage particles into new protons/ electrons and finally into new hydrogen atoms/ molecules and after cooling down new stars and small locally parallel galaxies. **Document F1c & figures.**
- 8) That adjustment of those velocities of protons/ electrons suitable for the formation of hydrogen within the vortexes takes many thousands – hundred thousands of years.
- 9) The reconstruction of protons, electrons and hydrogen out of the subatomic waste probably even takes some millions may be even billions of years.
- 10) Finally this reconstruction of new hydrogen atoms/ molecules will result in new stars, clouds of stars and small parallel galaxies which will take another millions of years as well.
- 11) Within those vortexes/ jets, within millions of years all forms of particle radiation/ sub atomic waste/ garbage are ultimately 100% re-formed/ recycled into new protons, electrons and new hydrogen.
- 12) At distances of hundreds – thousands of lightyears the blackhole that hydrogen plasma cools down to hydrogen gas and in time to liquid hydrogen resulting in **Fermi Bubbles**. At the end of these jets/ vortices in these bubbles new stars and even small parallel galaxies will be formed.
- 13) Inside the thin universe-spherical-shell/ USS the very same reconstruction of new protons, electrons and hydrogen atoms occurs which takes about 13.8 billions of years as well.
- 14) As long protons/ electrons don't form atoms such single protons/ electrons don't generate any form of physically gravity (**documents E3, E3-1 and E3-2** www.uitewijkwinkel.eu) and thus aren't affected as radiation by the gigantic gravity generated by the central black hole.
- 15) Further cooling of hydrogen to about a liquid of about 20 Kelvin results in condensation of hydrogen and in the disappearance of the gas pressure/ entropy. At all now present galaxies at various distances along their vortices/ jets, formation of new hydrogen, stars/ planets and small parallel galaxies will arise.

5.1.6 LAYER VI: THE CO ROTATING ACCRETION DISK WITH TORN APART STARS, CELESTIAL BODIES AND GASSES FALLING INTO THE BLACK HOLE:

- 1) Around all blackholes due the gigantic gravity of the blackhole such co-rotating accretion disk is standardly present. These accretion disks are filled with debris of stars, torn apart cores of stars/ celestial bodies/ planets, small types of blackholes after nebula explosions of stars, planets and gasses, fluids and solids falling into the blackhole.
- 2) These celestial bodies & atoms have the same speeds and thus generate the same components of *physically gravity* blackholes & blackhole atoms do. (Only similar gravitational components attract each other mutually!).
- 3) This mutually *attractive gravitational force* ensures that all stars and their planets and eventually the entire galaxy will be completely swallowed up by that currently already present central black hole in the centers of all now inside the USS present galaxies.
- 4) Due gravity in the next about 350 – 450 billion years all 4 – 6 thousands of galaxies present in each of the about 4 – 20 million clusters, will collide each other and merged into about 4 – 20 million very same *Central Cluster Black Holes/ CCBH's* now already started and present in the crossing points of the cosmic web.
- 5) In time these central cluster black holes/ CCBH's will just grow and eventually get and generate an equivalent amount of gravitation of many billions of sun/ solar gravitational equivalents/ SGE's containing all expansion speed/ energy of the universe as rotation speed/ energy.
- 6) In case stars and planets end up in the accretion disk of such a central black hole gravity first pulls out the hot core of the star which contains higher (plasma) atoms $\geq \text{Be}$. This also applies to the planets falling into a blackhole.
- 7) Near the black hole, all celestial bodies are separated into atoms which are accepted by the blackhole ($\geq \text{Be}$) and atoms ($< \text{Be}$) and subatomic particles radiation not accepted by the blackhole such as single protons, electrons, photons and neutrino's.
- 8) In this **Layer VI** temporally a *superhot gas cloud of stars remains* mainly consisting out of superhot plasma's of **hydrogen, helium, lithium, deuterium and tritium plasma** All in **Layer VI** present plasma's of H, H₂, He Li, deuterium and tritium atoms will end in that ring-shaped superhot donut **Layer IV** with nuclear fusion of these atoms into atoms $\geq \text{Be}$ which are accepted by the blackhole. Thus blackholes of galaxies just grow in time.
- 9) Those superhot remaining hot clouds of stars are visible on the by **ESA/ NASA** published photos/ images of these CBHG's (**Andromeda & Sagittarius A star***).
- 10) The planets undergo the same separation into atoms $\geq \text{Be}$, atoms $< \text{Be}$ and subatomic particles.
- 11) Atoms $\geq \text{Be}$ arrive **Layer II** where all atoms starting **Be** and higher implode and transformed directly into blackhole atoms and 100% absorbed by the black hole.
- 12) The photons, neutrinos and subatomic particles released during nuclear fusion stay inside captured inside **Layer III** and there present mix of plasma's of **H, H₂, He, Li, deuterium and tritium** and transported to one of the two vortices/ jets to be transformed within millions – billions of years into new created protons, electrons and hydrogen (plasma) atoms/ molecules.
- 13) Alongside these vortices that hydrogen forms new stars and clouds of stars/ small parallel galaxies.

***6) DISCUSSION:**

1) Due speed/ kinetic energy the 'shell'-electrons of normal atoms and the 'shell'-electrons of black hole atoms generate the very same form of *physical gravity and same speed related components*. **Document F1e & figures and E3, E3-1 and E3-2.**

Presented as compressed white arrows in **figures 1a, 1b and 1c**. Such physically gravity is generated continuously as a result of their linear and rotation/ angular velocities of normal & blackhole atoms in the universe.

2) Physically gravity is only present in an mutual attractive version. Different speed components of gravity react indifferent each other.

3) This *physical gravity* by **A.P.B. Uiterwijk Winkel** isn't based on particles with mass, matter, kinetic energy & waves and thus doesn't need an 'ether' of atoms as necessary transport medium. This *physical gravity* spreads without any *form of particles, waves and kinetic energy* and thus spreads with an *infinite speed* even through the 100% vacuum areas of the universe!

4) This *physical gravity* is continuously emitted by all shell-electrons of normal and collapsed blackhole atoms and moves on all sides at an infinitely ($\gg c$) great speed. Therefore this *physical gravity* is real time active throughout the whole universe and connects and entangles all normal and blackhole atoms *real time* in the universe!

5) This *physically form of gravity* is a literally invisible form of 'radiation' but definitely present and demonstrable in the universe as a real physically force and real time universe wide active as force due the infinite speed of physically gravity.
Physically gravity only recently (2023) discovered by changes in movements of pulsars.

6) *Physically gravity* can be constructed out of 15 – 17 *different components*; mainly rotation speed related components as results of the 15 – 17 possible speeds of atoms in the universe. **Only equal components of gravity attract each other mutually.** Different *physical gravitational components* are indifferent each other. **That reason *physically gravity* has a rather complicated structure and relation to the universe/ USS and cycle of the universe as whole!**

7) In blackholes such black hole atoms are subjected to fewer movements than ordinary atoms in celestial bodies elsewhere in the galaxy. These 'shell' electrons in the center of the galaxy therefore also generate *fewer gravitational components* than ordinary atoms outside the core of the galaxy.

8) The speed components of the gravity central blackholes of galaxies due the enormous angular speed are much stronger relative the same components outside these CBHG's! **This explains the origin of dark matter!**

9) This *physical gravity* by **A.P.B. Uiterwijk Winkel (E3, E3-1 and E3-2)** spreads *without particles & waves* with infinitely great speed through the entire universe and immense vacuum areas. This physically gravitation covers real time the entire universe/ USS inside as well the areas outside of it.

10) This *physically gravity* differs therefore completely in *design and structure of gravity* **Einsteins** derived mathematically in the *theory of relativity*.

11) In the theory of relativity a physically explanation for the origin of gravity is missing! Einsteins gravity in fact is based on particles (graviton), waves, the need of atoms as transport medium/ 'ether and spreading of gravity is limited by the speed of light c .

12) In fact Einstein just describes the atom → atom regulated transport of shockwaves of gravitational energy limited by the speed of light c and not the with infinite speed spreading physically gravity!

13) In the USS space and time/ universe-clock-time/ UCT are both entangled as well perfectly curved without generating any *physically* gravity nor any waves of gravitational energy!

14) LIGO and Virgo just observe these shockwaves and *mathematical form of 'gravitation'* via measuring such waves of gravitational energy.

15) LIGO and Virgo do not measure and observe any *physical form of gravity* as derived in documents E3, E3-1, E3-2 and F1e www.uitervijkwinkel.eu !

16) This infinite fast *physically gravity* is the real time glue of the universe keeping the universe and all there present mass, matter and kinetic energy together as 100% closed system. (**1th Law of thermodynamics**)

17) This *physical gravity* is emitted continuously but it is extremely difficult to measuring directly.

This physical gravity can now only be observed via the super slow *gravitational effects* that are emitted at infinitely high speed from two very slowly rotating black holes around each other as the final phase of two colliding and already merged galaxies. Only the merging of their central black holes is missing.

18) These (slow) gravitational effects of both still rotating central black holes influence pulsars that are present at a great distance from these two rotating central black holes. Now may be many tens - hundreds such each other rotating central blackholes of galaxies are present inside the USS which gravitational effects influence the whole universe real time.

19) **Planet** Earth and all other celestial bodies in the universe/ USS are affected the same way *real time* by the gravitational effects due collisions of galaxies and their central blackholes and by collisions of other celestial bodies.

20) The **Einstein telescope** that is yet to be developed & built may be able to observe this *physical gravity* and perhaps even measure this *physically gravity* quantitatively.

21) Mathematically modelling the cycle of the universe **G7, G8, G14, G15** is required in order calculating the number and amounts of speeds of atoms in the universe for calculating the 15 – 17 different components of *physically gravity* at the levels of a) clusters, b) galaxies c) stars and planets.

***7) CONCLUSIONS:**

- 1) Black holes are real, fast rotating, super massive celestial bodies completely filled with collapsed atoms starting beryllium / Be $\leftrightarrow$ atoms about nr 120. Blackholes don't and cannot accept atoms H, H₂, He, Li, and their isotopes as well all subatomic particles & waves based forms of radiation!**
- 2) Due the each other electrical and magnetic repulsion of blackhole atoms such blackholes cannot further collapse into a singularity!**
- 3) Scientifically seen the until 2025 presented images of blackholes as a singularity with a Schwarzschild radius are outdated.**
- 4) The nuclei of black hole atoms (document F1e) haven't much space left over for vibration. Thus blackhole atoms and all types of blackholes themselves are super cold (just about 2.7 kelvin).**
- 5) Thus blackholes are so cold they cannot evaporate as Hawking/ Penrose stated!**
- 6) Authors document G22 & 3D Max figures G22 by A. Yadava show black holes are completely predictable qua structure, as well explainable in physically, chemically and nuclear terms and processes.**
- 7) Blackholes can be presented as a construction of 6 layers I – VI. Each layer with its own construction and own physically and nuclear processes going on inside.**
- 8) Blackholes can be presented as well as a < 1 – 5 meter transparent rotating model of 6 *layers* each layer showing its own specific part of the blackhole and physically, chemically and nuclear processes going on inside each layer I - VI. These processes are presented as moving lights and in different colors.**
- 9) Each Layer I – VI can be projected separately on a screen with an additional information usable for universities, institutes, students, und during public days ESA, NASA, CERN.**
- 10) The in document G22 & G22 figures presented blackholes can be modelled mathematically and thus quantified.**

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